CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. R2 2003-0108

NPDES PERMIT NO. CA0037851

WASTE DISCHARGE REQUIREMENTS FOR:

LAS GALLINAS VALLEY SANITARY DISTRICT

MARIN COUNTY

December 3, 2003

TABLE OF CONTENTS

LIST OF TABLES

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. R2-2003-0108
NPDES PERMIT NO. CA0037851

REISSUING WASTE DISCHARGE REQUIREMENTS FOR:
LAS GALLINAS VALLEY SANITARY DISTRICT
MARIN COUNTY

FINDINGS

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board, finds that:

1. *Discharger and Permit Application.* The Las Gallinas Valley Sanitary District (hereinafter called the Discharger) has applied to the Board for reissuance of waste discharge requirements and a permit to discharge treated wastewater to waters of the State and the United States under the National Pollutant Discharge Elimination System (NPDES).

Facility Description

2. *Location.* The Discharger owns the Las Gallinas Valley Sanitary District Sewage Treatment Plant (the WWTP) located at 300 Smith Ranch Road, San Rafael, Marin County, California. A location map showing the location of the WWTP and its discharge points is included as Attachment A of this Order.

3. *Service Area and Population.* The WWTP provides secondary treatment of wastewater from primarily domestic and commercial sources within the northern area of the City of San Rafael. The Discharger's service area has a present population of about 30,000.

4. The U.S. Environmental Protection Agency (U.S. EPA) and the Board have classified this Discharger as a major discharger.

Purpose of Order

5. This NPDES permit regulates the discharge of treated wastewater to Miller Creek, a tributary of San Pablo Bay, waters of the United States. This discharge was previously governed by Waste Discharge Requirements specified in Order No. 98-112, adopted by the Board on October 21, 1998 (the previous permit).

Effluent and Reclamation System Discharge Description

6. *Discharge Volume and WWTP Capacity.* The WWTP has an average dry weather flow design capacity of 2.92 million gallons per day (MGD). The WWTP presently has an annual average flow of

2.8 MGD, which includes an average dry weather flow of 2.2 MGD. During June 1 to October 31, there is no discharge to Miller Creek, as required by the previous permit.

7. *Dry Weather Capacity.* Based on the above finding, the WWTP's dry weather flow is above 75 percent of the WWTP's design capacity. Pursuant to the California Code of Regulations, Title 23. Waters, § 2232 Ensuring Adequate Capacity, Provision E.13 requires the Discharger to submit an engineering analysis of the updated dry weather performance and capacity of the WWTP. If the Discharger plans to expand the WWTP to increase the dry weather capacity, an antidegradation study and certification of compliance with California Environmental Quality Act (CEQA), along with the engineering analysis, are required prior to the Board considering any increase in the maximum allowable discharge of dry weather effluent (see Provision E.14).

8. *Discharge Location.* During the discharge season, treated effluent from the WWTP flows to Miller Creek, either directly through the first outfall (E-001) and/or the second outfall (E-002), or via storage ponds through the second outfall. The locations of the WWTP's discharge points are depicted in Table 1, below, and are shown on the facility map contained in Attachment A to this Order.

Table 1. **Discharge point descriptions and locations.**

Discharge Point Name	Code	Latitude	Longitude
first outfall	E-001	38° 01' 32"	122° 30' 58"
second outfall	E-002	38° 01' 36"	122° 30' 45"

9. *Reclamation Project.* The Discharger operates a wastewater reclamation project that includes a 20-acre wildlife marsh pond, 40 acres of storage ponds, 200 acres of irrigated pasture and 3-1/2 miles of public trails. This project is described in the U.S. EPA's September 1993 publication *Wetlands as a Part of Reuse and Disposal - Las Gallinas Valley Sanitary District* (EPA832-R-93-005g). In addition, Marin Municipal Water District (MMWD) operates a Title 22-compliant recycled water reclamation facility located immediately adjacent to the WWTP. MMWD treats the Discharger's secondary effluent to produce disinfected tertiary recycled water, which it distributes for landscape irrigation and other approved uses. Within the MMWD's service area, most of the public and commercial properties, cemeteries and common areas of condominium developments, as well as Caltrans right of ways along Highway 101, are irrigated with recycled water.

10. Prior to 2003, water levels in the marsh were maintained at a depth of three feet or more with very little exposed mudflat. At this depth, wave action caused severe erosion of the levee slopes and islands. Because of these difficulties, the Discharger lowered the water level to mitigate the erosive wave action and evaluate alternatives for bank repairs. Since lowering the water level earlier in 2003, the Audubon Society has reported that the low water level (< 1.5 feet) in the marsh has attracted several different species of birds to the area, including migratory shorebirds that feed in the shallow mud flats. At this lowered level, the islands exposed in the middle of the marsh have become active nesting areas for Snowy egrets, Black crowned night herons, Canada geese, Mallards, Black phoebe, and Green heron. Black necked stilts and Killdeer were also observed nesting on the exposed shoreline mudflats. Provision E. 16 thus allows the Discharger to operate the Marsh pond at a lower water level, provided that the Discharger complies with the conditions as specified in the provision.

11. Currently, about 1180 acre-ft/yr (about 48 percent of the WWTP's average dry weather flow) is recycled. About 40 percent of annual recycled water is recycled via the Discharger's pasture irrigation system, and the remaining 60 percent is recycled via MMWD's recycled water system. Any remaining dry weather flow is retained in and evaporated from the ponds during the non-discharge

period. The Discharger's ability to meet the non-discharge period requirements depends, in part, upon the Discharger's continued ability to provide water to MMWD.

12. The Board has adopted waste discharge requirements regulating this reclamation program in Order No. 92-064 (regulating the Discharger's irrigation system) and Order No. 89-127 (regulating the MMWD's recycled water system). The effluent limits and monitoring requirements contained in those Orders govern during periods when there is no discharge to Miller Creek.

13. The Discharger's storage ponds provide a buffer between the production and subsequent use of treated effluent for the Discharger's and MMWD's reclamation systems. Differences in the rates of production and reuse exist daily (e.g. MMWD's demand is highest at night when WWTP flows are low) and seasonally (reuse rates are greatest in July and August). Depending on the overall dry season demand, the storage ponds may have surplus water at the end of the non-discharge season (October 31). The previous permit provides that surplus water from the storage ponds can be discharged between November 1 and May 31.

14. The attached Fact Sheet describes the discharge in detail, based on information contained in the Discharger's recent self-monitoring reports. Data is representative of the effluent during the discharge season from November 1998 – December 2002.

Treatment Process Description

15. *Treatment Process.* The treatment process consists of aerated grit chambers, primary sedimentation clarifier, intermediate clarifiers, two trickling filters in series, fixed-film reactor (nitrification), secondary clarifier, deep-bed filters, disinfection by chlorination using sodium hypochlorite, and dechlorination using sodium bisulfite. The treatment process may also employ chemical additions to enhance performance of the primary or secondary clarifiers, particularly during high flow conditions. Treatment processes used vary depending on influent flow and discharge season as follows:

    Dry Weather Flows (up to 2.92 MGD)

    - Secondary treatment with all unit processes operating, except as follows. During the non-discharge season (currently June 1 through October 31 annually), the dechlorinating agent is not added to the effluent. Instead, the chlorine is removed by natural processes in the storage ponds. Operation of the fixed film reactor may be varied to optimize ammonia levels for maximum effectiveness of disinfection. The deep bed filters (DBFs) are currently operated year-round, although such operation is not required during the non-discharge season under the Discharger's reclamation permit. The Discharger has indicated that it may use this flexibility to investigate other means of optimizing treatment that do not involve operation of the DBFs during the non-discharge season.

    Wet Weather Flows

    - All flows up to 5.8 MGD receive complete secondary treatment.

    - Flows between 5.8 MGD and 12.5 MGD receive primary treatment, deep bed filtration and disinfection.

    - Flows between 12.5 and 20 MGD flow from the aerated grit chamber directly to the deep bed filter and then to the disinfection units.

- Flows above 20 MGD flow from the aerated grit chamber directly to the disinfection units.

At flows less than 6 mgd, the discharge may be routed through the storage pond in the event of a chlorine residual spike, so as to use the natural dechlorination capacity of the ponds to ensure that no chlorine is present in the discharge to Miller Creek. The Discharger shall comply with the Self-Monitoring Program requirement by sampling the discharge for chlorine residual from the storage ponds to Miller Creek while such a discharge occurs.

A treatment process schematic diagram is included as Attachment B of this Order.

Collection System Description

16. *Collection System and Pump Stations.* The Discharger's sewage collection system contains about 105 miles of gravity sanitary sewers, 35 miles of pressure sewers, and 22 pump stations. All of the stations have alarms or are in the process of having alarms upgraded; adequate pump capacity; and provisions for emergency power. The Discharger has an ongoing preventive maintenance and capital improvement program for these sewer lines and pump stations to ensure adequate capacity and reliability of the collection system.

17. *Inflow and Infiltration.* The Discharger faces significant infiltration and inflow challenges. During 2001 and 2002, maximum daily flow rates have been 16.15 and 12.5 MGD. The Discharger has an ongoing program for addressing inflow and infiltration to its collection system, and recently completed a comprehensive rehabilitation of sewer mains and house laterals in the Gallinas Village area. This project also aimed to reduce salt water intrusion and thus improve the quality of effluent for reclamation.

18. *High Flow Conditions.* The collection system pump stations and WWTP headworks have sufficient capacity to accommodate peak wastewater flows during storm events. High wet weather flows are treated at the WWTP as described in the finding above.

Biosolids Handling and Disposal

19. *Solids Handling.* Grit removed from the wastewater stream are pumped through a degritter. Solids are treated by gravity thickening and anaerobic digestion, and then pumped to three storage ponds. Solids from the MMWD's water reclamation facility are pumped back through the WWTP or to the storage ponds.

20. *Storage Ponds.* The sludge storage ponds are double-lined with leachate and groundwater collection systems. The ponds have a capacity of about 3.2 million gallons.

21. *Solids Disposal.* The biosolids are disposed through subsurface injection, to about 6 inches under the soil, at the Discharger's 9-acre dedicated land disposal site, in accordance with federal regulations. The land application of municipal wastewater biosolids is regulated by the U.S. EPA under federal regulations found in 40 CFR 503 (Standards for the Use or Disposal of Sewage Sludge). Annual biosolids production is about 185 dry metric tons per year (average for 2000-2002). Grit is disposed of at Redwood Sanitary Landfill, a permitted municipal solid waste landfill. Skimmings from the clarifiers are put into tanks for decanting and are also hauled to the landfill.

Storm Water Discharge Description

22. *Regulations.* Federal Regulations for storm water discharges promulgated by the U.S. EPA on November 19, 1990. [40 CFR Parts 122, 123, and 124] require specific categories of industrial activity (industrial storm water from Publicly Owned Treatment Works) to obtain an NPDES permit and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to control pollutants in industrial storm water discharges.

23. *Exemption from Coverage under Statewide Storm Water General Permit.* The State Water Resources Control Board (the State Board) developed a statewide NPDES permit for storm water discharges associated with industrial activities (NPDES General Permit CAS000001 – the General Permit), reissued on April 17, 1997 after various revisions. Coverage under the General Permit is not required for the subject discharge because all storm water flows from the WWTP and sludge disposal area are captured, directed to the WWTP headworks, and treated along with the wastewater discharged to the WWTP. Because all storm water from the facility is treated at the facility, this permit regulates the discharge of storm water from the WWTP.

24. *Marin County Storm Water Pollution Prevention Program.* The Marin County Storm Water Pollution Prevention Program (MCSTOPP) is a joint project of eleven cities and towns and the County of Marin. The Discharger participates in MCSTOPP and works with the City of San Rafael and the Central Marin Sanitation Agency who have enforcement authority under the City of San Rafael's storm water ordinance. The storm water program strives to reduce the discharge of pollutants to creeks, wetlands and San Francisco Bay. The MCSTOPP is cooperating with the Marin County Flood Control District to implement an innovative approach to watershed preservation and protection of beneficial uses of creeks and wetlands using best management practices, public education, enforcement, and a newly developed pollution prevention program.

Regional Monitoring Program

25. Board Resolution No. 92-043 required major NPDES permit holders in the Region to participate in a collaborative effort to report on the water quality of the San Francisco Bay. This effort, carried out through the San Francisco Estuary Institute, is now known as the San Francisco Bay Regional Monitoring Program for Trace Substances (the Regional Monitoring Program – the RMP). This Order specifies that the Discharger shall continue to participate in the RMP, including collection of data on pollutants and toxicity in water, sediment and biota of the estuary.

Shallow Water Discharge Prohibition Exception

26. Section 4 (Table 4-1, Discharge Prohibitions) of the June 21, 1995 *Water Quality Control Plan San Francisco Bay Region (Region 2)* (the Basin Plan) prohibits the discharge of wastewater that does not receive a minimum initial dilution of at least 10:1 into any nontidal water, dead-end slough, similar confined waters, areas or any immediate tributaries thereof. The Basin Plan states that the Board may consider exceptions to the above prohibition, including exceptions for discharges which are part of a reclamation project, or which have demonstrated net environmental benefits as a result of the discharge.

27. The WWTP's outfalls are located in Miller Creek about 1 mile from the Bay, and they do not receive an initial dilution of 10:1 at all times. Miller Creek is a tidally influenced perennial creek having very low flows during the summer months (and winter months during a drought). During low tide, when

the creek is experiencing low flows, effluent dominates the creek. Discharges from the WWTP's outfalls are therefore classified by the Board as shallow water discharge.

28. In 1992, the Board's NPDES permit reissuance, Order No. 92-90, granted an exception to the prohibitions stated above, because the Discharger operates a reclamation program. Order No. 92-90 specified a reclamation season from June 1 through August 31. The subsequent NPDES Permit reissuance, Order 98-112, extended the discharge prohibition period by 2 months, from June 1 to October 31 annually.

29. As a condition of retaining the exception from the discharge prohibition, this Order continues the no discharge requirement from June through October.

30. The Discharger requested in its permit application that the no discharge requirement be restored to the previous period of June 1 to August 31. The Discharger has historically met the five month no discharge requirement, by operating its on-site reclamation system and by providing water to MMWD's recycled water system as described in an earlier finding. The Discharger is currently in discussions with both a major land owner to the immediate north as well as participating in the Napa Salt Pond Joint Powers Authority as a potential member for the purposes of expanding treated wastewater recycling to the areas to the north within and outside the District. However, the Discharger has cited uncertainties about future uses of recycled water. The Board accommodates this concern through Provision E.15. In the event future use of recycled water diminishes, Provision E.15 allows the Executive Officer to reduce the non-discharge season while requiring the Discharger to aggressively seek alternate water recycling opportunities. In addition, Prohibition A.4. allows for unavoidable discharges during the non-discharge period, upon justification by the Discharger and approval by the Executive Officer.

31. The Board has retained the exception to the Basin Plan discharge prohibitions. This continued exception is based on the Discharger's continued implementation of a reclamation program and the Discharger's commitment to improve treatment system reliability and redundancy. This Order includes specific provisions that require the Discharger to report to the Board annually on its efforts to improve the collection system and WWTP performance and reliability.

32. The Discharger is making, and will continue during this permit cycle, a number of capital improvements, estimated to cost $6.2 million, to the WWTP and collection system in order to improve performance and reliability. Projects in the design stage include a plant SCADA (Supervisory Control And Data Acquisition) system, plant headworks improvements (new barscreen, sluice gates and flow control systems), rerouting of solids from the MMWD reclamation plant to headworks (chemically conditioned sludge may improve primary clarifier efficiency), construction of a new diversion structure at the intermediate clarifier, construction of a new plant electrical building and other electrical facilities, upgrade of plant backup power system, and construction of additional chlorination and dechlorination feed facilities. Projects currently in (or near) construction include installation of flow instrumentation on the digester feed line, installation of variable speed drives at four of the collection system pump stations, installation of a computerized maintenance software, upgrading of weir gate controls at the primary clarifier, and installation of a solar photovoltaic power system at the reclamation pump station (contract awarded).

33. The outfalls (E-001 and E-002) are classified by the Board as shallow water discharges. The dilution credit, D, is a numerical value associated with the mixing zone that account for the receiving water entrained into the discharge. The Board has determined that the appropriate dilution credit (D) is zero, for the following reasons: (1) shallow water discharges are prohibited in the Basin Plan (page 4-5). As part of being granted an exception to this discharge prohibition, no dilution credit is granted;

(2) as described in Finding 27 above, the Discharger's receiving water, Miller Creek, at times of low tide or drought, is dominated by the effluent. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis...", the Board calculated effluent limits assuming no dilution (D=0), because there is uncertainty in accurately determining the mixing zone in a complex estuarine system with multiple wastewater discharges.

APPLICABLE PLANS, POLICIES, AND REGULATIONS

Basin Plan

34. The Board, on June 21, 1995, adopted, in accordance with Section 13240 et. seq. of the California Water Code, a revised Water Quality Control Plan, San Francisco Bay Basin (Basin Plan). This updated and revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20, 1995, and November 13, 1995, respectively. A summary of revisions to regulatory provisions is contained in 23 California Code of Regulations, Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters. This Order is in compliance with the Basin Plan.

Beneficial Uses

35. Beneficial uses for Miller Creek and San Pablo Bay receiving waters, as identified in the Basin Plan, and based on known uses of the receiving waters in the vicinity of the discharge, are:

- Cold Freshwater Habitat (Miller Creek only)
- Commercial and Sport Fishing (San Pablo Bay only)
- Estuarine Habitat (San Pablo Bay only)
- Industrial Service Supply (San Pablo Bay only)
- Fish Migration
- Navigation (San Pablo Bay only)
- Preservation of Rare and Endangered Species
- Water Contact Recreation
- Non-contact Recreation
- Shell Fish Harvesting (San Pablo Bay only)
- Fish Spawning
- Warm Freshwater Habitat (Miller Creek only)
- Wildlife Habitat

State Implementation Plan (SIP)

36. The SWRCB adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (also known as the State Implementation Policy or SIP) on March 2, 2000 and the Office of Administrative Law (OAL) approved the SIP on April 28, 2000. By letter dated May 1, 2001, EPA approved "those portions of the Policy that are subject to EPA's water quality standard approval authority under section 303(c) of the CWA." The letter indicated that EPA would comment on NPDES permit-related provisions separately. The letter also indicated that the longer TMDL-related compliance schedule provisions continue to be under EPA review. EPA approved Sections 1.1; 1.4.2 (mixing zones and dilution credits); 2 (through 2.2.1) (compliance schedules, except as noted above); 5.2 (site-specific objectives); 5.3 (exceptions) and Appendices 1 and 3. The SIP applies to discharges of toxic pollutants in the inland surface waters, enclosed bays and estuaries of California subject to regulation under the State's Porter-Cologne Water Quality

Control Act (Division 7 of the Water Code) and the Federal Clean Water Act. The SIP establishes implementation provisions for priority pollutant criteria promulgated by the U.S. EPA through the National Toxics Rule (NTR) and California Toxics Rule (CTR), and for priority pollutant objectives established by the Regional Water Quality Control Boards (RWQCBs) in their water quality control plans (basin plans). The SIP also establishes monitoring requirements for 2,3,7,8-TCDD equivalents, chronic toxicity control provisions, and Pollutant Minimization Programs.

California Toxics Rule (CTR)

37. On May 18, 2000, the U.S. EPA published the *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (Federal Register, Volume 65, Number 97, 18 May 2000 or the CTR). The CTR specified water quality criteria (WQC) for numerous pollutants, of which some are applicable to the Discharger's effluent discharges.

Other Regulatory Bases

38. Water quality objectives (WQOs) and effluent limitations in this permit are based on the SIP; the plans, policies and WQOs and criteria of the Basin Plan; California Toxics Rule (Federal Register Volume 65, 97); *Quality Criteria for Water* (EPA 440/5-86-001, 1986 and subsequent amendments, "U.S. EPA Gold Book"); applicable Federal Regulations (40 CFR Parts 122 and 131); the National Toxics Rule (57 FR 60848, 22 December 1992 and 40 CFR Part 131.36(b), "NTR"); NTR Amendment (Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237); U.S. EPA December 10, 1998 "*National Recommended Water Quality Criteria*" compilation (Federal Register Vol. 63, No. 237, pp. 68354-68364); and Best Professional Judgment (BPJ) as provided for in the Basin Plan. Where numeric effluent limitations have not been established or updated in the Basin Plan, 40 CFR 122.44(d) specifies that water quality-based effluent limits may be set based on U.S. EPA criteria and supplemented where necessary by other relevant information to attain and maintain narrative water quality criteria to fully protect designated beneficial uses. EPA guidance allows adoption of specific numeric effluent limitations based on narrative criteria if the Board adopts a translator procedure to translate narrative criteria for priority toxic pollutants. Discussion of the specific bases and rationale for effluent limits are given in the associated Fact Sheet for this permit, which is incorporated as part of this Order.

39. In addition to the documents listed above, other U.S. EPA guidance documents upon which BPJ was developed may include in part:

- Region 9 Guidance For NPDES Permit Issuance, February 1994;
- U.S. EPA Technical Support Document for Water Quality-Based Toxics Control (March 1991) (TSD);
- Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993;
- Whole Effluent Toxicity (WET) Control Policy, July 1994;
- National Policy Regarding Whole Effluent Toxicity Enforcement, August 14, 1995;
- Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods, April 10, 1996;
- Regions 9 & 10 Guidance for Implementing Whole Effluent Toxicity Programs Final, May 31, 1996;
- Draft Whole Effluent Toxicity (WET) Implementation Strategy, February 19, 1997.

BASIS FOR EFFLUENT LIMITATIONS

General Basis

40. *Federal Water Pollution Control Act.* Effluent limitations and toxic effluent standards are established pursuant to sections 301 through 305, and 307 of the Federal Water Pollution Control Act and amendments thereto are applicable to the discharges herein.

41. The technology-based limits for conventional pollutants are established in accordance with the Basin Plan and 40 CFR 125.

42. *Applicable Water Quality Objectives.* The water quality objectives (WQOs) applicable to the receiving water of this discharge are from the Basin Plan, the CTR, and the NTR.

    a. The Basin Plan specifies numeric WQOs for 10 priority toxic pollutants, as well as narrative WQOs for toxicity and bioaccumulation in order to protect beneficial uses. The pollutants for which the Basin Plan specifies numeric objectives are arsenic, cadmium, chromium (VI), copper in freshwater, and lead, mercury, nickel, silver, zinc, and total PAHs in saltwater. The narrative toxicity objective states in part "[a]ll waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms"(BP, page 3-4). The bioaccumulation objective states in part "[c]ontrollable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered. " (BP, page 3-2). Effluent limitations and provisions contained in this Order are designed to implement these objectives, based on available information.

    b. The CTR specifies numeric aquatic life criteria for 23 priority toxic pollutants and numeric human health criteria for 57 priority toxic pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries such as here, except that where the Basin Plan's Tables 3-3 and 3-4 specify numeric objectives for certain of these priority toxic pollutants, the Basin Plan's numeric objectives apply over the CTR (except in the South Bay south of the Dumbarton Bridge).

    c. The NTR established numeric aquatic life criteria for selenium and cyanide for waters of San Francisco Bay upstream to and including Suisun Bay and the Sacramento-San Joaquin Delta. This includes the receiving water for this discharge.

43. *Basin Plan Receiving Water Salinity Policy.* The Basin Plan states that the salinity characteristics of the receiving water shall be considered in determining the applicable water quality objectives. Freshwater objectives apply to discharges to waters both outside the zone of tidal influence and with salinities lower than 5 parts per thousand (ppt) at least 75 percent in a normal water year. Marine water objectives shall apply to discharges to waters with salinities greater than 5 ppt at least 75 percent in a normal water year. For discharges to waters with salinities in between these two categories or tidally influenced freshwaters that support estuarine beneficial uses, the objectives shall be the lower of the marine water or fresh water objectives, based on ambient hardness, for each substance (BP, page 4-13). For constituents with water quality objectives specified in the Basin Plan, it is appropriate to use the Basin Plan definition for determining if the receiving water is fresh water, marine water, or estuarine.

44. *CTR Receiving Water Salinity Policy.* The CTR states that the salinity characteristics (i.e., freshwater vs. saltwater) of the receiving water shall be considered in determining the applicable water quality criteria. Freshwater criteria shall apply to discharges to waters with salinities equal to or less than 1

ppt at least 95 percent of the time. Saltwater criteria shall apply to discharges to waters with salinities equal to or greater than 10 ppt at least 95 percent of the time in a normal water year. For discharges to waters with salinities in between these two categories, or tidally influenced freshwaters that support estuarine beneficial uses, the criteria shall be the lower of the salt or freshwater criteria (the freshwater criteria are calculated based on ambient hardness), for each substance. In applying CTR criteria, it is appropriate to use the CTR definition for determining if the receiving water is fresh, marine, or estuarine.

45. *Receiving Water Salinity.* The receiving waters for the subject discharge are the waters of Miller Creek and San Pablo Bay. Monitoring data collected by the Discharger were used to determine the salinity of the receiving water. Based on 1993 to 2002 salinity data, Miller Creek is estuarine in character under both CTR and Basin Plan salinity criteria. Furthermore, San Pablo Bay is specifically identified as estuarine in the Basin Plan. The applicable WQC or WQOs are, therefore, the lower of the marine and fresh water WQC or WQOs.

46. *Receiving Water Hardness.* A hardness of 145 mg/L was used to determined hardness dependant WQOs/WQC. This value was determined based on an analysis of 69 data points collected by the Discharger for Miller Creek. The hardness data set are censored (from 100 data points to 69 data points) to eliminate hardness values above 400 mg/L and to eliminate hardness values obtained when the receiving water salinity was above 1.0 ppt. From the censored data set, the adjusted geometric mean (AGM) of the hardness is calculated such that 30 percent of the data points fall below the AGM. The AGM of the hardness for the censored data used here is 145 mg/L (see the attached Fact Sheet for more details).

Effluent Limits

47. *Technology-Based Effluent Limits.* Title 40 of the CFR, Part 133.102 requires technology-based effluent limits for conventional pollutants – as defined by the Basin Plan - to ensure that full secondary treatment is achieved by the WWTP. These conventional effluent limits are the same as those in the prior permit for the following pollutants:
    - Biochemical oxygen demand (BOD)/Carbonaceous BOD (CBOD),
    - BOD percent removal,
    - Total suspended solids (TSS),
    - TSS percent removal,
    - pH,
    - Settleable matter,
    - Oil and grease, and
    - Total chlorine residual.

48. *Water Quality-Based Effluent Limitations.* Toxic substances are regulated by water quality-based effluent limitations (WQBELs) derived from U.S. EPA national water quality criteria listed in the Basin Plan Tables 3-3 and 3-4, the National Toxics Rule, or U.S. EPA Gold Book, the CTR, the SIP, and/or best professional judgment (BPJ). WQBELs in this Order are revised and updated from the limits in the previous permit and their presence in this Order is based on the evaluation of the Discharger's data as described below under the Reasonable Potential Analysis. Numeric WQBELs are required for all constituents that have reasonable potential to cause or contribute to an excursion above any State water quality standard. Reasonable potential is determined and final WQBELs are developed using the methodology outlined in the SIP. If the Discharger demonstrates that the final limits will be infeasible to meet and provides justification for a compliance schedule, then interim limits are established, with a compliance schedule to achieve the final limits. Further details about the

effluent limitations are given in the associated Fact Sheet. WQBELs are expressed as a monthly average and daily maximum. Below is a justification for setting a daily maximum limit in lieu of a weekly average limit.

a. Maximum Daily Effluent Limits (MDEL) are used in this permit to protect against acute water quality effects. It is impracticable to use weekly average limitations to guard against acute effects. Although weekly averages are effective for monitoring the performance of biological wastewater treatment plants, the MDELs are necessary for preventing fish kills or mortality to aquatic organisms.

b. NPDES regulations, the SIP, and U.S. EPA's Technical Support Document (TSD) provide the basis to establish MDELs:

   NPDES regulations at 40 Code of Federal Regulations section 122.45(d) state:

   " For continuous discharges all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall *unless impracticable* be stated as:

   (1) Maximum daily and average monthly discharge limitations for all discharges other than publicly owned treatment works; and

   (2) Average weekly and average monthly discharge limitations for POTWs." (Emphasis added.)

c. The SIP (page 8, Section 1.4) requires water quality based effluent limits be expressed as maximum daily effluent limitations (MDELs) and average monthly effluent limitations (AMELs).

d. The TSD (page 96) states a maximum daily maximum limitation is appropriate for two reasons:
   i. The basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards.
   ii. The 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge's potential for causing acute toxic effects would be missed. A maximum daily limit would be toxicologically protective of potential acute toxicity impacts.

49. *Receiving Water Ambient Background Data.* Ambient background values are used in the RPA. The WWTP discharges into Miller Creek, which is a tributary to San Pablo Bay. During the wet season, the flow in Miller Creek includes both fresh water inflows from upstream sources and tidal flows from the Bay. At other times, especially during the dry season, Miller Creek is tidally influenced and largely comprised of inflow from the Bay. Data from the San Pablo Bay RMP station BD20 (the San Pablo Bay RMP station) are the most representative currently available background data. RP was determined using ambient background data from 1993 through 2000 from the San Pablo Bay RMP station.

    However, a data gap remains as to the ambient background conditions for the discharge into Miller Creek. San Pablo Bay station RMP data were used for this permit reissuance because this is the best available information representing ambient background condition for this discharge. The Miller Creek outfall is located one mile from the mouth of San Pablo Bay; the RMP station in San Pablo Bay is located in the center of San Pablo Bay. Therefore, there is significant distance from the discharge

outfall to the RMP Station. For future permit reissuance, the Board may require sampling in Miller Creek to characterize ambient background conditions if data are needed.

50. *Constituents Identified in the 303(d) List.* On June 6, 2003, the U.S. EPA approved a revised list of impaired waterbodies prepared by the State (the 2002 303(d) list) in accordance with Section 303(d) of the federal Clean Water Act to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limits on point sources. The 303(d) list includes San Pablo Bay as impaired by: chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium. Miller Creek is listed as impaired by diazinon.

The Discharger is a member of the Bay Area Clean Water Agencies (BACWA), and is participating in a regional discharger-funded effort to develop site-specific aquatic-life-based saltwater WQOs (site specific SSOs) for copper and nickel in San Francisco Bay north of the Dumbarton Bridge, as described in the attached Fact Sheet.

51. *Total Maximum Daily Loads (TMDLs) and Waste Load Allocations (WLAs).*

    a. The Board plans to adopt Total Maximum Daily Loads (TMDLs) for San Pablo Bay for the above 303(d)-listed pollutants – except for dioxin and furan compounds - no later than 2010. The Board defers development of the TMDLs for dioxin and furan compounds to the U.S. EPA. The Board plans to adopt the diazinon TMDL for Miller Creek by 2004. Future review of the 303(d) list for San Pablo Bay and Miller Creek may result in revision of the schedules and/or provide schedules for other pollutants.

    b. The TMDLs will establish waste load allocations (WLAs) and load allocations for point sources and non-point sources, respectively, and will result in achieving the water quality standards for the water body. Depending upon whether the discharger is found to be impacting water quality in San Pablo Bay, the TMDLs may include WLAs for the dischargers. If the TMDLs address the Discharger, the final effluent limitations for this discharge would be based on the applicable WLAs.

52. The following summarizes the Board's strategy to collect water quality data and to develop TMDLs:

    a. Data collection – The dischargers collectively may assist in developing and implementing analytical techniques capable of detecting 303(d)-listed pollutants to at least their respective levels of concern or water quality objectives. The Board will require dischargers to characterize the pollutant loads from their facilities into the water quality-limited water bodies. The results will be used in the development of TMDLs, but may also be used to update/revise the 303(d) list and/or change the water quality objectives for the impaired water bodies including the San Pablo Bay.

    b. Funding mechanism – The Board has received, and anticipates continued receipt of, resources from federal and state agencies for the development of TMDLs. To ensure timely development of TMDLs, the Board intends to supplement these resources by allocating development costs among dischargers through appropriate funding mechanisms.

53. *Compliance Schedules.* Pursuant to Section 2.1.1 of the SIP, "the compliance schedule provisions for the development and adoption of a TMDL only apply when: (a) the discharger requests and demonstrates that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion; and (b) the discharger has made appropriate commitments to support and expedite the

development of the TMDL. In determining appropriate commitments, the RWQCB should consider the discharger's contribution to current loadings and the discharger's ability to participate in TMDL development." As further described in a finding below, the Discharger has requested and demonstrated that it is infeasible to achieve immediate compliance for certain pollutants. Also, the Discharger has agreed to assist the Board in TMDL development through its affiliation with BACWA. The Board adopted Resolution No. 01-103, on September 19, 2001, with BACWA, and other parties to accelerate the development of Water Quality Attainment Strategies including the TMDLs for the San Francisco Bay-Delta and its tributaries.

54. *Interim Limits and compliance schedules.*

a. Until final WQBELs or WLAs are adopted, state and federal anti-backsliding and antidegradation policies, and the SIP, require that the Board include interim effluent limitations. The interim effluent limitations will be the lower of the following:

   - current performance; or
   - previous order's limits, unless anti-backsliding provisions are met.

   This Order establishes interim performance-based mass limits in addition to interim concentration limits to limit discharge of 303(d)-listed bioaccumulative pollutants' mass loads to their current levels. These interim performance-based mass limits are based on recent discharge data. Where pollutants have existing high detection limits, interim mass limits are not established because meaningful performance-based mass limits cannot be calculated for pollutants with non-detectable concentrations. However, the discharger has the option to investigate alternative analytical procedures that result in lower detection limits, either through participation in new RMP special studies or through equivalent studies conducted jointly with other dischargers.

b. Compliance schedules are established based on Section 2.2 of the SIP for limits derived from CTR criteria or based on the Basin Plan for limits derived from the Basin Plan WQOs. If an existing discharger cannot immediately comply with a new and more stringent effluent limitation, the SIP and the Basin Plan authorize a compliance schedule in the permit. To qualify for a compliance schedule, both the SIP and the Basin Plan require that the discharger demonstrate that it is infeasible to achieve immediate compliance with the new limit. The SIP and Basin Plan require that the following information be submitted to the Board to support a finding of infeasibility:

   i. documentation that diligent efforts have been made to quantify pollutant levels in the discharge and sources of the pollutant in the waste stream, including the results of those efforts;
   ii. documentation of source control and/or pollution minimization efforts currently under way or completed;
   iii. a proposed schedule for additional or future source control measures, pollutant minimization or waste treatment; and
   iv. a demonstration that the proposed schedule is as short as practicable.

During the compliance schedules, interim limits are included based on current treatment facility performance or on previous permit limits, whichever is more stringent to maintain existing water quality. The Board may take appropriate enforcement actions if interim limits and requirements are not met.

55. On April 4, 2003 and October 17, 2003, the Discharger submitted an infeasibility study and an updated study (Attachment H) that demonstrated, pursuant to Section 2.1 of the SIP that it is infeasible to immediately comply with the WQBELs calculated according to Section 1.4 of the SIP for copper, mercury, cyanide, bis(2-ethylhexyl)phthalate, 4,4'-DDE, dieldrin, and heptachlor epoxide. Board staff conducted a statistical analysis of recent WWTP performance data for these pollutants (see Section IV.A.6 of the attached Fact Sheet). Based on that statistical analysis, the Board concurs with the infeasibility study. This Order establishes a 5-year compliance schedule for copper, as allowed by the CTR and Section 2.2 of the SIP for effluent limits based on CTR or NTR WQC. This Order also establishes a 5-year compliance schedule for mercury, as described in specific findings below.

    Pursuant to the SIP, this Order establishes numeric interim limits for copper, cyanide, mercury, bis(2-ethylhexyl)phthalate, 4,4'-DDE, dieldrin, and heptachlor epoxide. In addition to interim mercury concentration limits, this Order establishes an interim performance-based mass limit to maintain the discharge's current mass loadings of mercury into San Pablo Bay. Mercury is a 303(d)-listed bioaccumulative pollutant. This interim performance-based mass limitation is based on the existing permit. Specific bases for these interim limits are described in the findings for each pollutant. The Board may take appropriate enforcement actions if interim limits and requirements are not met.

56. *Antidegradation and Anti-backsliding.* The limitations in this Order are in compliance with the Clean Water Act Section 402(o) prohibition against establishment of less stringent WQBELs for the following reasons:

    (1) For impairing pollutants, the revised final limitations will be in accordance with TMDLs and WLAs once they are established;

    (2) For non-impairing pollutants, the final limitations are/will be consistent with current State WQOs/WQC.

    (3) Antibacksliding does not apply to the interim limitations established under previous Orders;

    (4) If antibacksliding policies apply to interim limitations under 402(o)(2)(c), a less stringent limitation is necessary because of events over which the Discharger has no control and for which there is no reasonable available remedy, and/or new information is available that was not available during previous permit issuance.

    The interim limitations in this permit are in compliance with antidegradation requirements and meet the requirements of the SIP because the interim limitations hold the Discharger to performance levels that will not cause or contribute to water quality impairment or further water quality degradation. Pollutant-specific discussions regarding the applicability of the antidegradation and antibacksliding policies are in findings below (e.g. chromium, lead, mercury, nickel, and cyanide).

Specific Basis for Effluent Limits

Reasonable Potential Analysis

57. As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard." Using the method prescribed in Section 1.3 of the SIP, Board staff has analyzed the effluent data to determine if the discharge, which is the subject of this Order, has a reasonable potential to cause or

contribute to an excursion above a State water quality standard ("Reasonable Potential Analysis" or "RPA"). For all parameters that have reasonable potential, numeric water quality-based effluent limitations (WQBELs) are required. The RPA compares the effluent data with numeric and narrative WQOs in the Basin Plan and numeric WQOs from the U.S. EPA Gold Book, the NTR, and the CTR.

RPA Methodology

58. *RPA Methodology.* The method for determining reasonable potential involves identifying the observed maximum pollutant concentration in the effluent (MEC) for each constituent, based on effluent concentration data. The RPA for all constituents is based on zero dilution, according to section 1.3 of the SIP. There are three triggers in determining reasonable potential:

    1) The first trigger is activated when the MEC is greater than the lowest applicable WQO/WQC, which has been adjusted for pH, hardness (145 mg/L in this case), and translator data, if appropriate. If the MEC is greater than the adjusted WQO, then that pollutant has reasonable potential, and a WQBEL is required.

    2) The second trigger is activated if the observed maximum ambient background concentration (B) is greater than the adjusted WQO (B>WQO), and either:

        i) the MEC is less than the adjusted WQO (MEC<WQO), or

        ii) the pollutant was not detected in any of the effluent samples and all of the detection levels are greater than or equal to the adjusted WQO.

    3) The third trigger is activated if a review of other information determines that a WQBEL is required even though both MEC and B are less than the WQO/WQC. A limit is only required under certain circumstances required to protect beneficial uses.

b. Table 2, below, depicts the results of the RPA. The RPA findings, numeric final WQBELs where required, feasibility determinations, and interim limits and compliance schedules, as appropriate, are set out in more detail below.

RPA Determinations

59. The RPA was based on monthly effluent monitoring data from the discharge season (November through May) for the period from November 1998 through December 2002 and ambient background data from San Pablo Bay RMP station for the period from 1993 through 2000. The RPA identifies the observed maximum concentration (MEC) in the effluent for each pollutant, based on effluent concentration data. The MECs, WQOs/WQC, bases for the WQOs/WQC, background concentrations used and reasonable potential conclusions from the RPA are listed in the following table for selected CTR constituents including those with reasonable potential. The RPA results for some of the constituents in the CTR were not able to be determined because of the lack of background data, an objective/criteria, or effluent data. (Further details on the RPA can be found in the Fact Sheet.)

Table 2. **Summary of Reasonable Potential Analysis Results**

CTR NO.	Constituents[1]	WQO/WQC (µg/L)	BASIS[2]	MEC (µg/L)	Maximum Ambient Background Conc. (µg/L)	Reasonable Potential
2	Arsenic	36	BP, sw	1.0	3.92	No
4	Cadmium	1.52	BP fw	0.6	0.1414	No
5b	Chromium VI	11	BP fw, H=145	2.2	40.7	Yes[4] (Trigger 2)
6	Copper	5.54	CTR T=0.56[3]	25	14.3	Yes (Triggers 1 and 2)
7	Lead	5.11	BP fw, H=145	2	6.46	Yes[4] (Trigger 2)
8	Mercury *	0.025	BP sw	0.077	0.0881	Yes (Triggers 1 and 2)
9	Nickel *	12.55	BP sw, T=0.56[3]	8.2	30	Yes[4] (Trigger 2)
10	Selenium	5.0	NTR	1.5	0.33	No
11	Silver	2.3	BP, sw	1.2	0.059	No
13	Zinc	124.7	BP sw, T=0.44[3]	110	35	No
14	Cyanide	1.0	NTR, sw	10	NA	Yes (Trigger 1)
	TCDD TEQ*	$1.4x10^{-8}$	CTR, hh	$<2.694x10^{-6}$	NA	Yes[5] (Trigger 3)
68	Bis(2-Ethylhexyl)Phthalate	5.9	CTR, hh	16	NA	Yes (Trigger 1)
109	4,4'-DDE*	0.00059	CTR, hh	<0.01	0.001159	Yes[4] (Trigger 2)
111	Dieldrin*	0.00014	CTR, hh	<0.01	0.000237	Yes[4] (Trigger 2)
118	Heptachlor Epoxide	0.00011	CTR, hh	<0.01	0.000121	Yes[4] (Trigger 2)
	CTR#s 1, 3, 12, 15, 17-126 except 68, 109, 111, and 108	Various or NA	CTR	Non-detect, less than WQO, or no WQO	Less than WQO or Not Available	No or Undetermined[6]

Footnotes for Table 2:

[1] * Indicates constituents on 303(d) list, dioxin applies to Toxicity Equivalent Factors (TEQ) of 2,3,7,8-TCDD.

[2] BP = Basin Plan;
CTR = California Toxics Rule
NTR = National Toxics Rule
H = hardness (in mg/L as $CaCO_3$)
T = translator
hh =human health

[3] The Discharger conducted translator studies in Miller Creek to develop acute and chronic site-specific translators for copper, nickel, and zinc. The chronic translators shown above were used to develop the chronic WQOs/WQC, which represent the lowest WQOs/WQC for copper, nickel, and zinc. The Basin Plan WQOs expressed in total recoverable metals are first converted to dissolved WQOs using CTR conversion factors, then site-specific translators are used to convert the dissolved WQOs back to total WQOs (see Fact Sheet for details).

[4] Chromium VI, Lead, Nickel, 4,4'-DDE, Dieldrin, and Heptachlor Epoxide: RPA = Yes, based on B>WQC.

[5] As discussed in a finding above, trigger 3 was used to determine RPA, however there was not enough data available to calculate an interim limitation. The Discharger will continue to monitor for this pollutant.

[6] Undetermined due to lack of objective/criteria, and/or lack of effluent data (See Fact Sheet Table B for full RPA results).

[7] Not Available – no ambient background data available.

60. *Polynuclear Aromatic Hydrocarbons (PAHs).* The RPA above was conducted on individual PAHs as required by the SIP and CTR using CTR criteria for the protection of human health. The Basin Plan has a saltwater objective for total PAHs of 15 µg/L as 24-hour average for the protection of aquatic life. A separate RPA was therefore performed on the total PAHs. However, effluent monitoring data for all 16 PAHs are non-detect. Provision E.2 of this Order requires the Discharger to continue characterizing the effluent for individual PAH constituents. Upon completion of the required effluent monitoring, the Board will use the gathered data to complete the RPA for all individual PAH constituents (as listed in the CTR) as well as on the total PAHs and determine if a water quality-based effluent limitation is required. Table 3 below lists the RPA conducted with the currently available data.

Table 3. **RPA Results for Individual PAH and Total PAHs**

CTR #	Constituent	WQO[1] (µg/L)	MEC (µg/L)	Maximum Ambient Background Conc. (µg/L)	RP[3]
56	Acenaphthene	2,700	<0.2	0.0093	No
57	Acenaphthylene	No Criteria	<0.2	0.0007	No
58	Anthracene	110,000	<0.3	0.01	No
60	Benzo(a)Anthracene	0.049	<0.3	0.0064	No
61	Benzo(a)Pyrene	0.049	<0.3	0.0094	No
62	Benzo(b)Fluoranthene	0.049	<0.3	0.018	No
63	Benzo(ghi)Perylene	No Criteria	<0.1	0.009	No
64	Benzo(k)Fluoranthene	0.049	<0.3	0.0051	No
73	Chrysene	0.049	<0.3	0.0083	No
74	Dibenzo(a,h)Anthracene	0.049	<0.1	0.0026	No
86	Fluoranthene	370	<0.05	0.022	No
87	Fluorene	14,000	<0.05	0.00073	No
92	Indeno(1,2,3-cd) Pyrene	0.049	<0.05	0.012	No
94	Naphthalene	No Criteria	<0.2	0.0016	No
99	Phenanthrene	No Criteria	<0.05	0.078	No
100	Pyrene	11,000	<0.05	0.03	No
	Total PAH	15	0[2]	0.22	No

Footnotes for Table 3:

[1] WQOs for individual PAHs are based on the numeric WQO for CTR protection of human health through consumption of organisms only; WQO for total PAH is from Basin Plan for the protection of aquatic life.

[2] When data are non-detect, 0 is used to replace the MEC for calculating the MEC of total PAHs.

[3] "No" since effluent data are all non-detect, minimum detection limits <WQOs, and background <WQOs.

61. *Other Constituents with Limited Data.* The Discharger has performed effluent sampling and analysis for the organic constituents listed in the CTR. This data set was used to perform the RPA. The full RPA is presented as an attachment to the Fact Sheet. In some cases, reasonable potential cannot be determined because ambient background concentration data are not available. Reasonable potential also cannot be determined for various organic constituents because accurate estimations are not possible due to the applicable WQOs/WQCs being lower than current analytical techniques can measure. The Discharger will continue to monitor for these constituents using analytical methods that provide the best feasible detection limits. If detection limits improve to the point where it is feasible to evaluate compliance with applicable WQC, another RPA will be conducted to determine whether there is a need to add numeric effluent limits to the permit or to continue monitoring.

62. *Effluent RP Monitoring.* For constituents that do not show reasonable potential, effluent limits are not included in the permit, but continued monitoring is required as identified in the attached Self-Monitoring Program, which is hereby incorporated by reference. If significant increases occur in the concentrations of these constituents to the extent that reasonable potential occurs or may occur, the Discharger will be required to investigate the source of the increases and establish remedial measures if the increases pose a threat to water quality.

63. *Permit Reopener.* The permit includes a reopener provision allowing numeric effluent limits to be added or deleted for any constituent that exhibits or does not exhibit, respectively, reasonable potential. This determination will be made by the Board based on monitoring results.

64. *RPA Results for Impairing Pollutants.* While TMDLs and WLAs are being developed, effluent concentration limits are established in this permit for 303(d)-listed pollutants that have reasonable potential. In addition, mass limits are required for bioaccumulative 303(d)–listed pollutants (i.e., mercury) that can be reliably detected. Constituents on the 303(d) list for which the RPA determined a need for effluent limits are mercury, 4,4'-DDE (chemically linked to DDT), dieldrin, and dioxin. Final determination of reasonable potential for other constituents identified on the 303(d) list could not be performed due to lack of available effluent data, or lack of an established WQO or WQC.

Specific Pollutants

65. Hexavalent Chromium

    a. *Chromium Water Quality Objectives.* To protect fresh water aquatic life, the Basin Plan specifies objectives for hexavalent chromium of 11 µg/L as a 4-day average and 16 µg/L as a 1-hour average, and the governing WQO is 11 µg/L as a 4-day average. Table 3-4 of Basin Plan, Footnote f states that the WQOs can be met as total chromium.

    b. *RPA Results.* The ambient background level of 40.7 µg/L exceeds the governing WQO of 11 µg/L, demonstrating reasonable potential by Trigger 2, above.

c. *WQBELs.* The final hexavalent chromium WQBELs calculated according to SIP procedures are 16 µg/L as a maximum daily effluent limit (MDEL) and 8.5 µg/L as an average monthly effluent limit (AMEL). Order 98-112 contains a daily average effluent limitation of 11 µg/L for hexavalent chromium. Refer to e., below for the rationale for inclusion of the WQBELs in this permit.

d. *WWTP Performance and Attainability.* During the period November 1998 through December 2002, the WWTP's effluent MEC for hexavalent chromium was 2.2 µg/L. Since all effluent hexavalent chromium values were below the 16 µg/L MDEL and 8.5 µg/L AMEL, it is feasible for the Discharger to comply with the WQBELs for hexavalent chromium.

e. *Anti-backsliding/Anti-degradation.* The previous hexavalent chromium effluent limitation was a daily average limit of 11 µg/L, and it was based on the Basin Plan WQO for aquatic chronic protection. The final limits described in c., above, were developed based on the applicable SIP procedures. The AMEL of 8.5 ug/L addresses the chronic effects; the MDEL of 16 µg/L addresses the acute effects. Therefore, the maximum daily (MDEL=16 µg/L) calculated from the SIP, and the daily average calculated from the Basin Plan (Daily Average=11 µg/L) cannot be compared for the purpose of anti-backsliding, and the MDEL cannot be replaced by the previous permit. In addition, anti-backsliding and anti-degradation provisions are satisfied because this pollutant is monitored on a monthly basis, the final limits in the Order will effectively be more stringent than the previous limit.

66. Copper

a. *Copper Water Quality Criteria.* The CTR's saltwater WQC for copper are 3.1 µg/L for chronic protection and 4.8 µg/L for acute protection. The Discharger developed site-specific translators using its receiving water sampling data. The translators are 0.56 (median) and 0.83 (90^{th} percentile) for converting the CTR chronic and acute dissolved WQC into chronic and acute total WQC, respectively. Using these translators, the translated criteria were calculated to be 5.54 µg/L for chronic protection and 5.78 µg/L for acute protection. These values were used to perform the RPA and to calculate effluent limits. Therefore, the governing WQC is 5.54 µg/L, based on the 3.1 µg/L CTR value and the site-specific translator.

b. *RPA Results.* The 25 µg/L MEC in the data set and the ambient background level of 14.3 µg/L both exceed the governing WQC of 5.54 µg/L, demonstrating reasonable potential by Triggers 1 and 2, above.

c. *WQBELs.* The copper WQBELs calculated according to SIP procedures are 5.8 µg/L MDEL and 3.4 µg/L AMEL. The final limitations may change due to development of a copper SSO and updated translator and hardness values.

d. *Immediate Compliance Infeasible.* The infeasibility study asserts the Discharger cannot immediately comply with these WQBELs. Board staff statistically analyzed the Discharger's effluent data from November 1998 through December 2002 and determined that the assertion of infeasibility is substantiated for copper (see Section IV.A.6 and Table D of the attached Fact Sheet for detailed results of the statistical analysis).

e. *Interim Performance-based Limit (IPBL).* Because the Discharger cannot immediately comply with the copper WQBELs, this Order establishes an IPBLfor copper. IPBLs have been referenced to the 99.87^{th} percentile value of recent effluent data. Board staff conducted a statistical analysis of WWTP effluent data. This analysis of recent, log-transformed copper effluent data indicates a

99.87th percentile value of 28.5 µg/L. This is higher than the 17 µg/L limit included in Order No. 98-112. Therefore, the 17 µg/L limit adopted in Order No. 98-112 is retained in this Order as a daily maximum limitation.

f. *WWTP Performance and Attainability.* During the period November 1998 through December 2002, the WWTP's effluent MEC for copper was 25 µg/L. The second highest value of 19 µg/L occurred during a voluntary non-discharge month (May 2001). All remaining 28 copper values over that period were below the 17 µg/L interim limit. Although the MEC exceeds the interim limit, Board staff's evaluation of the discharge data indicates that it is feasible for the WWTP to comply with the interim limit.

g. *Term of Interim Limit.* The copper interim limit shall remain effective until November 30, 2008 or until the Board amends the limits based on additional data or Site Specific Objectives (SSOs).

h. *Anti-backsliding/Anti-degradation.* The interim limitation is equal to the previous copper effluent limitation and the final WQBELs are more stringent than the previous permit limit. Anti-backsliding/anti-degradation requirements are satisfied.

67. Lead

a. *Lead Water Quality Objectives.* To protect fresh water aquatic life, the Basin Plan specifies WQOs for lead of 5.11 µg/L as a 4-day average and 131.02 µg/L as a 1-hour average which are calculated based on the ambient hardness value of 145 mg/L. Therefore, the governing WQO for lead is 5.11 µg/L.

b. *RPA Results.* The ambient background level of 6.46 µg/L exceeds the governing WQO of 5.11 µg/L, demonstrating reasonable potential by Trigger 2, above.

c. *WQBELs.* The lead WQBELs calculated according to SIP procedures are 7 µg/L MDEL and 4.6 µg/L AMEL. Refer to e. below for the rationale for inclusion of the final WQBELs in this Order.

d. *WWTP Performance and Attainability.* During the period November 1998 through December 2002, the WWTP's effluent MEC for lead was 2 µg/L. Since all effluent lead values were below the 7 µg/L MDEL and 4.6 µg/L AMEL, it is feasible for the Discharger to comply with the WQBELs for lead.

e. *Anti-backsliding/Anti-degradation.* The previous lead effluent limitation was a daily average limitation of 3.2 µg/L. The final limits described in c., above, were developed based on the applicable SIP procedures. Under Clean Water Act Sections 402(o)(1) and 303(d)(4), there is an allowable exception to anti-backsliding for a pollutant as long as the relaxation of limits complies with anti-degradation requirements and if it is based on new information that was not available when the previous order was issued. Such new information is the site-specific ambient hardness value as indicated in Finding 46 above. Anti-degradation is satisfied because the receiving waters are not identified as impaired for lead, the new limit will not result in significantly lower water quality, and the proposed action does not involve significant or substantial increases in pollutant loadings.

68. Mercury

a. *Mercury Water Quality Objectives.* Both the Basin Plan and CTR include objectives that govern mercury in the receiving water. The Basin Plan specifies objectives for the protection of saltwater

aquatic life of 0.025 µg/L as a 4-day average and 2.1 µg/L as a 1-hour average. The CTR specifies a long-term average criterion for protection of human health of 0.051 µg/L. The governing WQO is the Basin Plan's 4-day average of 0.025 µg/L for the protection of saltwater aquatic life.

b. *RPA Results.* The 0.077 µg/L mercury MEC and ambient background level of 0.0881 µg/L exceed the governing WQO of 0.025 µg/L, demonstrating reasonable potential by Triggers 1 and 2, above.

c. *WQBELs.* The mercury WQBELs calculated according to SIP procedures are 0.035 µg/L MDEL and 0.022 µg/L AMEL. Order 98-112 included a final monthly average mercury limit of 0.012 µg/L to be applied at the end of the compliance schedule.

d. *Immediate Compliance Infeasible.* The infeasibility study asserts the Discharger cannot immediately comply with the mercury WQBELs. Board staff statistically analyzed the Discharger's effluent data from November 1998 through December 2002 and determined that the assertion of infeasibility is substantiated for mercury (see Section IV.A.6 and Table D of the attached Fact Sheet for detailed results of the statistical analysis).

e. *IPBL.* Due to the infeasibility of the Discharger immediately complying with the mercury WQBELs, this amendment establishes a mercury IPBL of 0.087 µg/L. A 2001 Board staff report, *Statistical Analysis of Pooled Data From Regionwide Ultraclean Mercury Sampling for Municipal Dischargers*, (available in electronic form on the Board's website) identified two statistically derived IPBLs for mercury, 0.023 µg/L for advanced secondary WWTPs and 0.087 µg/L for secondary WWTPs. Since the Discharger operates a secondary WWTP, the appropriate IPBL is 0.087 µg/L as a monthly average. This limit is lower than the interim monthly average limitation of 0.11 µg/L included in the previous Order.

f. *Interim Mercury Mass Emission Limit.* In addition to the concentration-based mercury IPBL, this Order establishes an interim annual mercury mass loading limit of 0.41 kilograms per year (kg/yr). This limit is retained from the previous Order and will maintain current loadings until a TMDL is established and is consistent with state and federal anti-degradation and anti-backsliding requirements. The final mass-based effluent limitation will be based on the WLA derived from the mercury TMDL.

g. *Mass Trigger.* This Order establishes a mercury mass trigger of 0.013 kilograms per month (kg/mo). This mass trigger is based on the recent WWTP's performance (from November 1998 through December 2002) at the 99.87 percentile (or average + 3 standard deviation) for the 12-month moving average mass loadings calculated using the mercury monthly average concentration and the total flow discharged to the receiving water. The mass loading trigger, if exceeded, requires the Discharger to initiate additional actions, as specified in Provision E.9. The mass trigger is more stringent than the previous permit mass trigger which was 0.026 kg/month.

h. *WWTP Performance and Attainability.* During the period November 1998 through December 2002, the Discharger's effluent mercury concentrations ranged from 0.018 µg/L to 0.077 µg/L and averaged 0.035 µg/L. These historic data indicate that the concentration-based IPBL is attainable. During the same time period, the calculated 12-month moving average mercury mass emissions ranged from 0.102 kg/yr (0.0085 kg/mo) to 0.18 kg/yr (0.015 kg/mo). Based on these results, the annual average mass loading limit and trigger values should be attainable by the WWTP.

i. *Term of Interim Limit.* The previous Order included a 7-year compliance schedule for final mercury limits and allowed the Board to extend the schedule by an additional 3 years. The IPBL will remain effective until November 30, 2008. The Board has granted the 3 year extension to the compliance schedule because the Discharger has developed and implemented measures to reduce mercury levels in the discharge.

j. *Expected Final Mercury Limits.* The final mercury WQBELs and the interim mass emission limitation will be revised to be consistent with the WLA assigned in the adopted mercury TMDL. While the TMDL is being developed, the Discharger will comply with performance-based mercury concentration and mass-based limits to cooperate in maintaining current ambient receiving water conditions.

k. *Anti-backsliding/Anti-degradation.* The IPBL is lower than the interim limit in the previous Order and the mass limit is equal to previous Order limit. Anti-backsliding and anti-degradation requirements, therefore, are met.

69. Nickel

a. *Nickel Water Quality Objectives.* The Basin Plan contains numeric nickel saltwater WQOs which are 7.1 µg/L for chronic protection and 140 µg/L for acute protection, as total recoverable metal. The CTR contains conversion factors for nickel, which are 0.99 for converting both total chronic and acute WQOs to dissolved WQOs, based on the laboratory conditions under which the Basin Plan WQOs were developed. The Discharger developed site-specific translators, which are 0.56 and 0.82 for converting dissolved chronic and acute WQOs, respectively, to total WQOs. Using the above conversion factors and site-specific translators, the converted Basin Plan WQOs are 12.55 µg/L and 169 µg/L as chronic and acute WQOs, respectively.

b. *RPA Results.* The ambient background level of 30 µg/L exceeds the governing WQO of 12.55 µg/L, demonstrating reasonable potential by Trigger 2, above.

c. *WQBELs.* The nickel WQBELs calculated according to SIP procedures are 18 µg/L MDEL and 11 µg/L AMEL. Order 98-112 contains a final daily average effluent limitation of 7.1 µg/L and an interim daily average limitation of 8.3 µg/L for nickel. The final WQBELs included in this Order are those calculated according to SIP procedures. Refer to e. below for the rationale for inclusion of these WQBELs.

d. *WWTP Performance and Attainability.* During the period November 1998 through December 2002, the WWTP's effluent MEC for nickel was 8.2 µg/L. Since all effluent nickel values were below the 18.3 µg/L MDELand 11 µg/L AMEL, it is feasible for the Discharger to comply with the WQBELs for nickel.

e. *Anti-backsliding/Anti-degradation.* The previous nickel effluent limitation was a daily average limitation of 7.1 µg/L. The final limits described in c. were developed based on site-specific translator data and the applicable SIP procedures. Under Clean Water Act Sections 402(o)(1) and 303(d)(4), there is an allowable exception to anti-backsliding for a pollutant as long as the relaxation of limits complies with anti-degradation requirements and if it is based on new information that was not available when the previous order was issued. Such new information is the site-specific translators as indicated in a. above. Nickel is no longer listed as causing impairment in the receiving waters. The new limit will not result in significantly lower water quality, and the proposed action does not involve significant or substantial increases in pollutant

loadings. Therefore, incorporation of the new, higher limits is allowable under anti-backsliding provisions.

70. Cyanide

a. *Cyanide Water Quality Criteria.* The NTR includes WQC that govern cyanide for the protection of aquatic life in the surface water. The NTR specifies the saltwater Criterion Maximum Concentration (CMC) and Criterion Chronic Concentration (CCC) of 1 µg/L. These CMC and CCC values are below the presently achievable reporting limits (range from about 3 to 5 µg/L).

b. *RPA Results.* All 11 of the detectable cyanide effluent results exceed the governing WQC of 1 µg/L, demonstrating reasonable potential by Trigger 1, above.

c. *WQBELs.* The cyanide WQBELs calculated according to SIP procedures are 1 µg/L MDEL and 0.48 µg/L AMEL.

d. *Immediate Compliance Infeasible* The infeasibility study asserts the Discharger cannot immediately comply with the cyanide WQBELs. Board staff statistically analyzed the Discharger's effluent data from November 1998 through December 2002 and determined that the assertion of infeasibility is substantiated for cyanide (see Section IV.A.6 and Table D of the attached Fact Sheet for detailed results of the statistical analysis).

e. The Discharger has participated in a regional discharger-funded effort to conduct a study for development of a SSO applicable to the Discharger's receiving water. The collaborative cyanide study plan was submitted to the Board on October 29, 2001. If detection limits improve to a point where the Discharger can measure to a level at or below the WQO, and there are detectable values above the WQO and thus reasonable potential, the Board may include, in a subsequent permit revision, a final limit based on these study results.

f. Cyanide measured in the Discharger's effluent appears to be the result of processes wherein cyanide (or cyanide complexes) are formed during the disinfection process, rather than as the result of "pass through" from the influent stream (i.e. influent cyanide values are always at or below the detection limit). There is also evidence to suggest that, to some degree, cyanide measured in effluents may be an artifact of the analytical method used or the result of analytical interferences. In general, the chemistry of cyanide formation in POTW effluents is highly complex, involving both chemical and environmental factors, in ways that are still poorly understood, despite considerable research. In addition, it is not known whether the form(s) of cyanide that are measured in POTW effluents exhibit toxicity in these environments. A 3-year $1.5 M investigation completed in late 2002, sponsored by the Water Environment Research Foundation (WERF), in which several Bay Area POTWs participated, described a number of possible mechanisms for cyanide formations, and shed new light on analytical issues, but found no process or operational measures that could be implemented by the Discharger to reduce observed cyanide levels in the Discharges effluent.

g. WERF has initiated a follow-up $0.5 M study to reassess cyanide criteria for the protection of aquatic life and wildlife. It will critique data to assure it meets current best scientific standards and new U.S. EPA guidelines, recommend testing strategies, and develop a data set to meet guidelines for ambient water quality development. It is expected that results from that study will provide information useful to devising alternative cyanide compliance strategies for shallow water dischargers in San Francisco Bay.

h. Historically, the Dischargers in the San Francisco Bay Area used Standard Methods Part 4500-CN C and Part 4500-CN I for total and weak acid dissociable cyanide measurements, respectively, in the effluent samples. From these sampling results, it appears that there are certain unknown constituents in effluents that interfere with the measured results. Recently, another Discharger in San Francisco Bay Area, Central Contra Costa Sanitary District (CCCSD), switched to U.S. EPA Method OIA 1677, which is a continuous-flow, amperometric method. This method in some instances is less influenced by all the interferences common to Standard Methods Part 4500-CN C and 4500-CN I. Using this method, CCCSD discovered that sulfide, sulfite, and certain other reducing substances could cause false positive cyanide results. This permit authorizes the discharger the option of using Method OIA 1677 for cyanide compliance monitoring.

i. This Order contains a provision requiring the Discharger to participate in a regional discharger-funded effort to conduct a study for development of a SSO, and investigate the relationship between cyanide formation and chlorine dose, as chlorine dosage will be reduced under the new bacteria limits.

j. *IPBL.* Statistical analysis on the effluent data indicates that the Discharger cannot comply with the cyanide WQBELs (see Section IV.A.6 and Table D of the attached Fact Sheet for detailed results of the statistical analysis). Therefore, this Order establishes an IPBL for cyanide. Historically, IPBLs have been referenced to the 99.87th percentile value of recent performance data. Statistical analysis of recent, log-transformed cyanide effluent data indicates a 99.87th percentile value of 19 µg/L (see Attachment 4 of the Fact Sheet for details). The IPBL is included in this Order even though it is higher than the 5 µg/L limit included in Order No. 98-112, see discussion in m. below.

k. *WWTP Performance and Attainability.* During the period November 1998 through December 2002, the MEC for cyanide was 10 µg/L. Board staff's evaluation of the discharge data indicates that it should be feasible for the WWTP to comply with the IPBL.

l. *Term of IPBL.* The cyanide IPBL shall remain effective until November 30, 2008 or until the Board amends the limits based on additional data or SSOs.

m. *Anti-backsliding/Anti-degradation.* The final WQBELs are more stringent than the final limit in the previous permit. The interim limit is the lower of the previous permit limit or current performance-based limit, unless anti-backsliding provisions are met (see Finding 56 above). In this case, the Board has set the interim limit at the current performance, which is higher than the previous permit limit. Under Clean Water Act Sections 402(o)(1) and 303(d)(4), there is an allowable exception to anti-backsliding for a pollutant based on new information that was not available when the previous Order was issued. Such information is now available as indicated in e.-g. above. Anti-degradation is satisfied because the receiving waters are in attainment for cyanide, the new limit will not result in significantly lower water quality, and the proposed action does not involve significant or substantial increases in pollutant loadings.

71. Bis(2-Ethylhexyl)Phthalate

a. *Water Quality Criteria.* The CTR establishes a human health value of 5.9 µg/L for bis(2-ethylhexyl)phthalate, based on consumption of organisms.

b. *RPA Results.* The 16 µg/L bis(2-ethylhexyl)phthalate MEC exceeds the governing WQO of 5.9 µg/L, demonstrating reasonable potential by Trigger 1, above.

c. *WQBELs.* The bis(2-ethylhexyl)phthalate WQBELs calculated according to SIP procedures are 12 µg/L MDEL and 5.9 µg/L AMEL.

d. *Immediate Compliance Infeasible.* The infeasibility study asserts the Discharger cannot immediately comply with the bis(2-ethylhexyl)phthalate WQBELs. Board staff statistically analyzed the Discharger's effluent data from November 1998 through December 2002 and determined that the assertion of infeasibility is substantiated for bis(2-ethylhexyl)phthalate (see Section IV.A.6 and Table D of the attached Fact Sheet for detailed results of the statistical analysis).

e. *Interim Effluent Limitation.* Board staff considered effluent data from 1998 through 2002 to develop an interim effluent limitation. However, the data only contained one detected value among nine samples; therefore, it was not possible to perform a meaningful statistical evaluation of current treatment performance. No limits for bis(2-ethylhexyl)phthalate were included in the previous Order. The interim effluent limitation, therefore, is set at the MEC, which is 16 µg/L as a daily maximum.

f. *WWTP Performance and Attainability.* During the period November 1998 through December 2002, the Discharger's effluent bis(2-ethylhexyl)phthalate concentrations ranged from non-detectable (at detection limits ranging from 5 µg/L to 25 µg/L) to 16 µg/L. Since the interim limitation is set at the MEC and because the source of the detected value for bis(2-ethylhexyl)phthalate may have been laboratory contamination, it is feasible that the WWTP can comply with the interim limitation.

g. *Term of IPBL.* The bis(2-ethylhexyl)phthalate IPBL shall remain effective until November 30, 2008 or until the Board amends the limits based on additional data.

h. *Anti-backsliding/Anti-degradation.* There were no WQBELs in the previous permit; therefore, anti-backsliding and anti-degradation provisions do not apply.

72. Dieldrin, 4,4'-DDE, and Heptachlor Epoxide

a. Dieldrin, 4,4'-DDE, and Heptachlor Epoxide Water Quality Criteria. In the CTR, the lowest criteria for dieldrin, 4,4'-DDE, and heptachlor epoxide are the human health values of 0.00014 µg/L, 0.00059 µg/L, and 0.00011 µg/L, respectively. These criteria are well below the MLs of 0.05 µg/L, 0.01 µg/L, and 0.01 µg/L, respectively identified in Appendix 4 of the SIP.

b. RPA Results. This Order establishes limits for 4,4'-DDE, dieldrin, and heptachlor epoxide because the ambient background concentrations exceed the governing WQC, demonstrating reasonable potential.

c. *WQBELs.* The 4,4'-DDE, dieldrin, and heptachlor epoxide WQBELs calculated according to SIP procedures are: 0.00059 µg/L AMEL and 0.00118 µg/L MDEL for 4,4'-DDE, 0.00014 µg/L AMEL and 0.00028 µg/L MDEL for dieldrin, and 0.00011 µg/L AMEL and 0.00022 µg/L MDEL for heptachlor epoxide.

d. *Immediate Compliance Infeasible.* All 4,4-DDE, dieldrin, heptachlor epoxide effluent values are non-detect and the detection limits are above water quality objectives. Therefore, it is infeasible for the Discharger to achieve immediate compliance. As described in the Infeasibility Study, the Discharger will continue its existing pollution prevention efforts for these pollutants.

e. *Interim Effluent Limitation.* The existing Order does not contain effluent limits for 4,4'-DDE, dieldrin, and heptachlor epoxide. Since the Discharger cannot accurately determine and the Board cannot verify compliance at levels below the MLs, This Order sets the interim monthly average limits at the lowest level that the Discharger can demonstrate compliance, which are the individual MLs specified by the SIP. The interim limits are as follows; 4,4'-DDE is 0.05 µg/L, dieldrin is 0.01 µg/L and heptachlor epoxide is 0.01 µg/L, all as daily maximums.

f. *WWTP Performance and Attainability.* Effluent data from 1998 through 2002 contain results of analysis of nine samples for these parameters. They were not detected in the effluent in any of the samples.

g. *Term of Interim Effluent Limits.* The 4,4'-DDE, dieldrin, and heptachlor epoxide interim effluent limits shall remain effective until November 30, 2008 or until the Board amends the limits based on additional data, SSOs, or the Waste Load Allocation in the TMDL.

h. *Anti-backsliding/Anti-degradation.* There were no WQBELs in the previous permit; therefore, anti-backsliding and anti-degradation provisions do not apply.

73. Dioxin TEQ.

a. *Dioxin Water Quality Criteria.* The CTR establishes a numeric human health WQC of 0.014 picograms per liter (pg/L) for 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD) based on consumption of aquatic organisms. The preamble of the CTR states that California NPDES permits should use toxicity equivalents (TEQs) where dioxin-like compounds have reasonable potential with respect to narrative criteria. The preamble further states that U.S. EPA intends to use the 1998 World Health Organization Toxicity Equivalence Factor (TEF)[1] scheme in the future and encourages California to use this scheme in State programs. Additionally, the CTR preamble states U.S. EPA's intent to adopt revised water quality criteria guidance subsequent to their health reassessment for dioxin-like compounds. Staff used TEQs to translate the narrative WQOs to numeric WQOs for the other 16 congeners.

b. *RPA Results.* Dioxin TEQ monitoring show no detected values in the effluent, but the levels of detection are above the CTR criterion. On May 15, 2003, BACWA submitted a collaborative receiving water study entitled the *San Francisco Bay Ambient Water Monitoring Interim Report.* This report addresses monitoring results from sampling events in 2002 and 2003 for the remaining priority pollutants not monitored by the RMP. While these "interim" data have not been used to evaluate RP for trigger 2, they show elevated dioxin levels in the San Francisco Bay at the Yerba Buena Island station. (Dioxin sampling and analysis was not performed at the San Pablo Bay RMP station). Based on these data and the inclusion of dioxins and furans on the 303(d) list for San Pablo Bay, the Board has determined that there is reasonable potential for dioxin using trigger 3 in the SIP.

c. *Dioxin Monitoring.* The final limits for dioxin TEQ will be based on the waste load allocated to the Discharger from the TMDL. The detection limits historically used by the Discharger are insufficient to accurately determine the concentrations of the dioxin congeners in the discharge.

---

[1] The 1998 WHO scheme includes TEFs for dioxin-like PCBs. Since dioxin-like PCBs are already included within "Total PCBs", for which the CTR has established a specific standard, dioxin-like PCBs are not included in this Order's version of the TEF scheme.

The SIP does not specify an ML for dioxin analysis. This permit requires additional dioxin monitoring to complement a special dioxin project being conducted by Clean Estuary Partnership (CEP). The special dioxin project will consist of impairment assessment and a conceptual model for dioxin loading into the Bay. The report will be submitted by mid 2004.

Whole Effluent Acute Toxicity

74. This Order includes effluent limits for whole-effluent acute toxicity that are unchanged from the previous Order. Compliance evaluation is based on 96-hour flow-through bioassays. All bioassays shall be performed according to the U.S. EPA approved method in 40 CFR 136, currently "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water, 5th Edition." Dischargers have identified several practical and technical issues that need to be resolved before implementing the new procedures. The primary unresolved issue is the use of younger, possibly more sensitive fish, which may necessitate a reevaluation of permit limits. SWRCB staff recommended to the Boards that new or renewed permit holders be allowed a time period in which laboratories can become proficient in conducting the new tests. During November 1998 through December 2002, the eleven sample median survival was between 95 and 100 percent. The 90th percentile survival was between 85 and 95 percent.

Whole Effluent Chronic Toxicity

75. Chronic Toxicity

    a. *Permit Requirements.* This permit includes requirements for chronic toxicity monitoring based on the Basin Plan narrative toxicity objective, and in accordance with U.S. EPA and SWRCB Task Force guidance, and BPJ. This permit includes the Basin Plan narrative toxicity objective as the applicable effluent limit, implemented via monitoring with numeric values as "triggers" to initiate accelerated monitoring and to initiate a chronic toxicity reduction evaluation (TRE) as necessary. The permit requirements for chronic toxicity are also consistent with the CTR and SIP requirements.

    b. *Discharge Monitoring.* Chronic toxicity data for October 1999 to January 2003 consistently show low-level chronic toxicity in the effluent. The causes of this toxicity have not been identified to date. Provision E.8 of this Order, therefore, requires the Discharger to prepare and submit to the Board within 60 days of the effective date of this Order an evaluation of the possible sources of the toxicity through the TIE/TRE processes as well as plan to address these sources.

    c. *Permit Reopener.* The Board will consider amending this permit to include numeric toxicity limits if the Discharger fails to aggressively implement all reasonable control measures included in its approved TRE workplan, following detection of consistent significant non-artifactual toxicity.

Bacteriological Limits

76. This Order includes alternative enterococcus effluent limits instead of the total coliform limits included in the previous Order, and those limits are consistent with the U.S. EPA's recommended limits for a "lightly used area." Provision E.11 of this Order requires the Discharger to conduct a study including water quality sampling in Miller Creek to demonstrate that the enterococcus limits will be fully protective of the beneficial uses of the receiving water, and to confirm that the "lightly used area" contact scenario is appropriate for the receiving waters.

Source Control and Pollution Prevention

77. The Discharger has established a Pollution Prevention Program under the requirements specified by the Board.

    a. Section 2.4.5 of the SIP specifies under what situations and for which priority pollutant(s) (i.e., reportable priority pollutants) the Discharger shall be required to conduct a Pollutant Minimization Program in accordance with Section 2.4.5.1.

    b. There may be some redundancy between the Pollution Prevention Program and the Pollutant Minimization Program requirements.

    c. Where the two programs' requirements overlap, the Discharger is allowed to continue/modify/expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.

    d. For constituents identified under Effluent Limits, Section B, the Discharger will conduct appropriate source control or pollutant minimization measures that are consistent with its approved Pretreatment and Pollution Prevention Programs. For constituents with compliance schedules under this permit, the applicable source control/pollutant minimization requirements of SIP Section 2.1 will also apply.

78. On October 15, 2003, the Regional Board adopted Resolution R2-2003-0096 in support of a collaborative working approach between the Board and BACWA to promote Pollution Prevention Program development and excellence. Specifically, the Resolution embodies a set of eleven guiding principles that will be used to develop tools such as "P2 menus" for specific pollutants, as well as provide guidance in improving P2 program efficiency and accountability. Key guiding principles in the Resolution include promoting watershed, cross-program and cross-media approaches to pollution prevention, and jointly developing tools to assess individual Discharger's program performance that may include peer reviews, self-audits or other formats.

Requirement for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy

79. *Insufficient effluent and ambient background data.* Staff's review of the effluent and ambient background monitoring data found that there were insufficient data to determine reasonable potential and calculate numeric WQBELs for some pollutants listed in the SIP.

80. *SIP- Required Dioxin monitoring.* The SIP states that each Board shall require major and minor POTWs and industrial dischargers in its region to conduct effluent monitoring for the 2,3,7,8-TCDD congeners whether or not an effluent limit is required for 2,3,7,8-TCDD. The monitoring is intended to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries. The State Board will use these monitoring data to establish strategies for a future multi-media approach to control these chemicals.

81. On August 6, 2001, the Board sent a letter to all the permitted dischargers pursuant to Section 13267 of the California Water Code requiring the submittal of effluent and receiving water data on priority pollutants. This formal request for technical information addresses the insufficient effluent and ambient background data, and the dioxin study. The letter (described above) is referenced throughout the permit as the "August 6, 2001 Letter".

82. Pursuant to the August 6, 2001 Letter from Board Staff, the Discharger has submitted workplans and sampling results for characterizing the levels of selected constituents in the effluent and ambient receiving water. This finding references this August 6, 2001 Letter to the Discharger.

83. *Monitoring Requirements (Self-Monitoring Program).* The SMP includes monitoring at the outfall for conventional, non-conventional, toxic pollutants, acute toxicity, and chronic toxicity. The Board has determined that daily performance monitoring is appropriate for major POTWs. For solids analysis, the settleable matter sampling frequency is reduced from daily to monthly, as TSS monitoring, which has been increased to five times per week from the previous permit's three times per week is an effective and relatively inexpensive method to evaluate day-to-day performance. This Order requires monthly discharge season monitoring for hexavalent chromium, copper, lead, mercury, nickel, and cyanide demonstrate compliance with effluent limits. Twice yearly monitoring is required for bis(2-ethylhexyl)phthalate because it was only detected once in the effluent, and Provision E.4 requires the Discharger to investigate if it could have been a laboratory contaminant. Because they were not detected in the effluent during 1998-2002, this Order also requires twice yearly monitoring (during the discharge season) for 4,4-DDE, dieldrin, and heptachlor epoxide to demonstrate compliance with interim effluent limits. Until analytical methods improve and MLs are lowered, more frequent monitoring will not generate more useful data. For dioxins and furans, this Order further requires twice yearly monitoring using methods with lower detection limits.

Operations and Maintenance Manual

84. *Operations and Maintenance Manual.* An Operations and Maintenance (O&M) Manual is maintained by the Discharger for purposes of providing plant and regulatory personnel with a source of information describing all key equipment, recommended operation strategies, process control monitoring, and maintenance activities. In order to remain a useful and relevant document, the manual shall be kept updated to reflect significant changes in treatment facility equipment and operation practices.

Optional Mass Offset

85. *Optional Mass Offset.* This Order contains requirements to prevent further degradation of the impaired waterbody. Such requirements include the adoption of interim mass limits that are based on WWTP performance, provisions for aggressive source control, feasibility studies for wastewater reclamation, and WWTP optimization. After implementing these efforts, the Discharger may find that further net reductions of the total mass loadings of the 303(d)-listed pollutants to the receiving water can only be achieved through a mass offset program. This Order includes an optional provision for a mass offset program.

Other Permit Conditions

86. *NPDES Permit.* This Order serves as an NPDES Permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code [California Environmental Quality Act (CEQA)] pursuant to Section 13389 of the California Water Code.

87. *Notification.* The Discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity to submit their written views and recommendations. Board staff prepared a Fact Sheet and Response to Comments, which are hereby incorporated by reference as part of this Order.

88. *Public Hearing.* The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the Discharger shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Discharge of wastewater at any point where it does not receive a minimum initial dilution of 10:1, or into dead-end slough and similar confined waters is prohibited, except as defined below. Based on Findings 28 and 29, an exception to this prohibition is granted for the discharge of treated effluent during the period from November through May, provided the Discharger continues to work to reuse the maximum feasible amount of treated wastewater and to minimize discharges to Miller Creek. Discharge of treated wastewater at a location or in a manner different from that described in the findings of this Order is prohibited.

2. The bypass or overflow of untreated or partially treated wastewater to waters of the State, either at the WWTP or from the collection system or pump stations tributary to the WWTP, is prohibited, except as provided for bypasses under the conditions stated in 40 CFR 122.41(m)(4) and in Standard Provisions A.13.

   The discharge of blended wastewater, that is biologically treated wastewater blended with wastewater that have been diverted around biological treatment units or advanced treatment units, is allowable only 1) during wet weather, and 2) when the discharge complies with the effluent and receiving water limitations contained in this Order. Furthermore, the Discharger shall operate the facility as designed and in accordance with the Operation and Maintenance Manuals developed for the facility. This means that the Discharger shall optimize storage and use of equalization units, and shall fully utilize the biological treatment units, and advanced treatment units if applicable. The Discharger shall report these incidents of blended effluent discharges in routine monitoring reports, and shall conduct monitoring of this discharge as specified elsewhere in this Order.

3. The average dry weather flow discharge shall not exceed 2.92 MGD. The average dry weather flow shall be determined over three consecutive dry weather months each year.

4. Discharge to Miller Creek is prohibited during the dry weather period from June 1 through October 31, unless the Discharger submits a request, which may be submitted over the telephone to the Executive Officer and the Executive Officer approves it. This request must fully explain the need for discharges during this period (e.g., high flows related to late spring or early fall storm events or, when reclamation is not feasible).

5. Discharges of water, materials, or wastes other than storm water, which are not otherwise authorized by this NPDES permit, to a storm drain system or waters of the State are prohibited.

B. EFFLUENT LIMITS

The term "effluent" in the following limits means the fully treated wastewater effluent from the discharger's wastewater treatment facility, as discharged to Miller Creek. The effluent discharged to Miller Creek shall not exceed the following limits:

Conventional and Non-Conventional Pollutants

1. Conventional Pollutants During Dry Weather Months

The effluent discharged through Outfalls E-001 and E-002 shall not exceed the following limits during the month of May:

Table 4. **Effluent Limits for Conventional and Non-Conventional Pollutants for May**

Constituent	Unit	Monthly Average	Weekly Average	Daily Maximum
a. Biochemical Oxygen Demand	mg/L	20	25	30
(BOD_5, 20°C) or				
Carbonaceous BOD	mg/l	15	18	20
b. Total Suspended Solids	mg/L	15	18	20
c. Oil and Grease	mg/L	5		15
d. Total Ammonia as N	mg/L	6.0		
e. Settleable Solids	mg/L-hr	0.1		0.2

2. Conventional Pollutants During Wet Weather Months

The effluent discharged through outfall E-001 and E-002 shall not exceed the following limits from November 1 through April 30:

Table 5. **Effluent Limits for Conventional and Non-Conventional Pollutants November 1 – April 30**

Constituent	Unit	Monthly Average	Weekly Average	Daily Maximum
a. Biochemical Oxygen Demand	mg/L	30	45	
(BOD_5, 20°C) or				
Carbonaceous BOD	mg/l	25	38	50
b. Total Suspended Solids	mg/L	30	45	
c. Oil and Grease	mg/L	10		20
d. Settleable Solids	mg/L-hr	0.1		0.2

3. The discharge shall not have pH of less than 6.5 nor greater than 8.5.

4. Chlorine Residual: The effluent shall not contain a chlorine residual concentration greater than 0.0 mg/l at any time, except during the non-discharge season when effluent is discharged to the reclamation storage ponds. This concentration requirement is defined as below the limit of detection in standard test methods defined in the latest edition of *Standard Methods for the Examination of Water and Wastewater*. The Discharger may elect to use a continuous on-line monitoring system(s) for measuring flows, chlorine and sodium bisulfite dosage (including a safety factor) and concentration to demonstrate that chlorine residual exceedances are false positives. If adequate evidence is provided, Board staff will conclude that these false positive chlorine residual exceedances are not violations of this permit limit.

5. The arithmetic mean of the BOD or carbonaceous BOD and total suspended solids (TSS) values, for effluent samples collected in each calendar month shall not exceed 15 percent of the arithmetic mean

of the respective values for influent samples collected at about the same times during the same period, i.e., at least 85 percent removal.

6. Enterococcus: The treated wastewater, at some point in the treatment process prior to discharge, shall meet the following limits of bacteriological quality:

   a. 30-day geometric mean of less than 35 enterococcus colonies per 100mL; and

   b. No single effluent sample exceeding 276 colonies per 100mL, as verified by a follow-up sample taken within 24 hours.

Toxic Pollutants

7. Whole Effluent Acute Toxicity:

   Representative samples of the discharge shall meet the following limits for acute toxicity. Bioassays shall be conducted in compliance with Provision E.6.

   a. The survival of bioassay test organisms in 96-hour bioassays of undiluted effluent shall be:

      (1) An eleven (11)-sample median value of not less than 90 percent survival; and

      (2) An eleven (11)-sample 90th percentile value of not less than 70 percent survival.

   b. These acute toxicity limits are further defined as follows:

      (1) 11-sample median limit:
      Any bioassay test showing survival of 90 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 90 percent represents a violation of this effluent limit, if five or more of the past ten or fewer bioassay tests also show less than 90 percent survival.

      (2) 90th percentile limit:
      Any bioassay test showing survival of 70 percent or greater is not a violation of this limit. A bioassay test showing survival of less than 70 percent represents a violation of this effluent limit, if one or more of the past ten or fewer bioassay tests also show less than 70 percent survival.

   c. Bioassays shall be performed using the most up-to-date U.S. EPA protocol and the most sensitive species as specified in writing by the Executive Officer based on the most recent screening test results. Bioassays shall be conducted in compliance with "Methods for Measuring The Acute Toxicity of Effluents and Receiving Water To Freshwater and Marine Organisms", currently 5th Edition (EPA-821-R-02-012), with exceptions granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP) upon the Discharger's request with justification.

8. Chronic Toxicity

   a. Representative samples of the effluent shall meet the following requirements for chronic toxicity. Compliance with the Basin Plan narrative chronic toxicity objective shall be demonstrated

according to the following tiered requirements based on results from representative samples of the treated final effluent meeting test acceptability criteria:

(1) Routine monitoring;

(2) Accelerated monitoring after exceeding a three sample median value of 1 chronic toxicity (1 TUc)[2] or a single sample maximum of 2 TUc or greater. Accelerated monitoring shall consist of monitoring at frequency intervals of one half the interval given for routine monitoring in the SMP of this Order;

(3) Return to routine monitoring if accelerated monitoring does not exceed either "trigger" in "2", above;

(4) Initiate approved toxicity identification evaluation/toxicity reduction evaluation (TIE/TRE) work plan if accelerated monitoring confirms consistent toxicity above either "trigger" in "2", above;

(5) Return to routine monitoring after appropriate elements of TRE work plan are implemented and either the toxicity drops below "trigger" level in "2", above or, based on the results of the TRE, the Executive Officer authorizes a return to routine monitoring.

b. Test Species and Methods: The Discharger shall conduct routine monitoring with the most sensitive species determined during the most recent chronic toxicity screening performed by the Discharger and approved by the Executive Officer. Bioassays shall be conducted in compliance with the most recently promulgated test methods, currently "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms," currently 3rd edition (EPA-821-R-02-014), with exceptions granted the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

9. Toxic Substances:

The discharge of effluent shall not exceed the following limits:

Table 6. **Effluent Limits for Toxic Pollutants** [1] [5]

Constituent	Unit	MDEL	AMEL	Interim Monthly Average	Interim Daily Maximum
Chromium VI	µg/L	16	8.5		
Copper [2]	µg/L				17
Lead	µg/L	7	4.6		
Mercury [2] [3]	µg/L			0.087	

[2] A TUc equals 100 divided by the no observable effect level (NOEL). The NOEL is determined from IC, EC, or NOEC values. Monitoring and TRE requirements may be modified by the Executive Officer in response to the degree of toxicity detected in the effluent or in ambient waters related to the discharge. Failure to conduct the required toxicity tests or a TRE within a designated period shall result in the establishment of effluent limits for chronic toxicity

Constituent	Unit	MDEL	AMEL	Interim Monthly Average	Interim Daily Maximum
Nickel	µg/L	18	11		
Cyanide[2] [4]	µg/L				19
Bis(2-ethylhexyl)phthalate[2]	µg/L				16
4,4'-DDE[2]	µg/L				0.05
Dieldrin[2]	µg/L				0.01
Heptachlor Epoxide[2]	µg/L				0.01

Footnotes for Table 6:

[1] (a) Compliance with these limits is intended to be achieved through wastewater treatment and, as necessary, pretreatment and source control.

(b) All analyses shall be performed using current U.S. EPA methods, or equivalent methods approved in writing by the Executive Officer

(c) Limits apply to the average concentration of all samples collected during the averaging period (Daily = 24-hour period; Monthly = calendar month).

[2] These interim limits shall remain in effect until November 30, 2008, or until the Board amends the limit based on additional data, site-specific objectives, or the WLAs in respective TMDLs.

[3] Mercury: Effluent mercury monitoring shall be performed by using ultraclean sampling and analysis techniques to the maximum extent practicable, with a minimum level of 0.002 µg/l, or lower.

[4] Cyanide: Compliance may be demonstrated by measurement of weak acid dissociable cyanide or EPA Method OIA 1677.

[5] A daily maximum or average monthly value for a given constituent shall be considered non-compliance with the effluent limits only if it exceeds the effluent limitation and the reported ML for that constituent. The table below indicates the lowest minimum level that the Discharger's laboratory must achieve for compliance determination purposes.

Table 7. **Minimum levels for compliance determinations**

Constituent	Unit	Minimum Level
Chromium VI	µg/L	5
Copper	µg/L	0.5
Lead	µg/L	0.5
Mercury	µg/L	0.002
Nickel	µg/L	1
Cyanide	µg/L	5
Bis(2-ethylhexyl)phthalate	µg/L	5
4,4'-DDE	µg/L	0.05
Dieldrin	µg/L	0.01
Heptachlor Epoxide	µg/L	0.01

10. Mercury Mass Limit and Mass Trigger

The Discharger shall demonstrate that the current mercury mass loading to the receiving water does not increase by complying with the following:

a. Mass limit: The 12-month moving average annual load for mercury shall not exceed **0.41 kg/year**. This limit was calculated for the previous permit from the highest of the 12-month moving average loads taken from moving average total flows times the corresponding moving average mercury concentrations during the entire year.

b. Mass trigger: If the 12-month moving average monthly mass loading for mercury exceeds **0.013 kg/month**, the actions specified in Provision E.9 shall be initiated. This load was calculated using the monthly average discharge flow (in MGD) times the corresponding monthly average mercury concentration.

c. Compliance with this limit and trigger shall be evaluated using monthly moving averages of total mass load from flows discharged to surface waters and concentrations, computed as described below:

12-Month Monthly Moving Average of Total Mass Load = Average of the monthly total mass loads from the past 12 months

Monthly Total Mass Load (kg/month) = {[monthly plant discharge flows (in mgd) from the Outfall (E-001) × monthly effluent concentration measurements (in µg/L) corresponding to the above flows, for samples taken at E-001] + [monthly discharge flow from the storage ponds (in mgd) if there are discharges from the storage ponds through Outfall E-002 × monthly effluent concentration measurements at E-001 (in µg/L) from the previous month of such discharge]} × 0.1151 (conversion factor to convert million gallons/day × µg/L to kg/month).

d. The Discharger shall submit a cumulative total of mass loadings for the previous 12 months with each monthly Self-Monitoring Report. Compliance of each month will be determined based on the 12-month moving averages over the previous 12 months of monitoring calculated as using the method described in section B.10.c above. The Discharger may use monitoring data collected under accelerated schedules (i.e., special studies) to determine compliance.

e. The mercury TMDL and WLAs will supersede this interim mass emission limitation upon their completion. The Clean Water Act's anti-backsliding rule, Section 402(o), indicates that this Order may be modified to include a less stringent requirement following completion of the TMDL and WLA, if the requirements for an exception to the rule are met.

C. RECEIVING WATER LIMITS

1. The discharges shall not cause the following conditions to exist in waters of the State at any place:

   a. Floating, suspended, or deposited macroscopic particulate matter or foam;

   b. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin; and

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or which render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause nuisance, or adversely affect the beneficial uses of the receiving water.

3. The discharges shall not cause the following limits to be exceeded in waters of the State at any one place within one foot of the water surface:

   Dissolved Oxygen: 5.0 mg/L, minimum

   The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved oxygen content at saturation. When natural factors cause concentrations less than that specified above, then the discharge shall not cause further reduction in ambient dissolved oxygen concentrations.

   Dissolved Sulfide: 0.1 mg/L, maximum

   pH: The pH shall not be depressed below 6.5 nor raised above 8.5, nor caused to vary from normal ambient pH by more than 0.5 pH units.

   Un-ionized Ammonia: 0.025 mg/L as N, annual median; and 0.4 mg/L as N, maximum.

   Nutrients: Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

4. The discharges shall not cause a violation of any particular water quality standard for receiving waters adopted by the Board or the State Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

5. The Discharger shall continue to operate all treatment facilities to assure high reliability and redundancy

D. BIOSOLIDS/SLUDGE REQUIREMENTS

1. All sludge treatment, processing, storage or disposal activities under the Discharger's control shall be in compliance with current state and federal regulations.

2. Sludge shall not be applied to the dedicated disposal site between October 30 and May 1 unless prior written authorization is obtained from the Executive Officer.

3. Sewage sludge disposed of at the storage lagoons and dedicated disposal site shall be limited to digested sewage sludge generated by the discharger and sludge from MMWD's reclamation facility unless an exception is authorized by the Executive Officer.

4. Disposal of sludge in the dedicated disposal site shall not adversely impact beneficial uses of the groundwater or Miller Creek.

5. The Discharger shall notify the Board, in writing, of any significant changes in its sludge disposal practices.

6. The treatment, processing, storage or disposal of sludge conducted by the Discharger shall not create a condition of pollution or nuisance as defined in Section 13050 (l) and (m) of the California Water Code.

7. The treatment, processing, storage or disposal of sludge by the Discharger shall not cause waste material to be discharged to, or deposited in, waters of the State. Ponded water or runoff from the disposal area shall not be discharged to adjacent land or ditches discharging to surface waters. Sludge storage facilities shall be operated and maintained in such a manner as to provide adequate protection from surface runoff, erosion, or other conditions which would cause drainage from the waste materials to escape from the storage facility site(s).

8. Disposal of municipal wastewater solids by surface disposal and operation of a surface disposal site are regulated by the U.S. EPA under the 40 CFR 503 regulations *(Standards for The Use or Disposal of Sewage Sludge)*. Waste discharge requirements for sludge disposal are waived under the condition that the discharger complies with all provisions of 40 CFR Part 503. As required by Water Code Section 13269, the finding is made that this waiver is not against the public interest, as the activity is adequately regulated by the Federal regulations at 40 CFR Part 503.

9. The Discharger is required to submit an annual report to the U.S. EPA regarding its sewage sludge disposal practices in accordance with the requirements of 40 CFR 503. The Discharger shall submit a copy of this report to the Board.

E. PROVISIONS

1. Permit Compliance and Rescission of Previous Waste Discharge Requirements

The Discharger shall comply with all sections of this Order beginning on January 1, 2004. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 98-112. Order No. 98-112 is hereby rescinded upon the effective date of this permit.

2. Effluent Characterization for Selected Constituents

The Discharger shall continue its effort to monitor and evaluate the discharge from Outfall E-001 for the constituents listed in Enclosure A of the Board's August 6, 2001 Letter. Compliance with this requirement shall be achieved in accordance with the specifications contained in that Letter under "Effluent Monitoring for major Dischargers". Interim reports shall be submitted annually. A final report is due with the NPDES permit renewal application (180 days before permit expiration).

3. Cyanide Compliance Schedule and Cyanide SSO Study

The Discharger shall comply with the following tasks and deadlines:

Tasks	Compliance Date
a. *Compliance Schedule.* The Discharger should track relevant national studies, and participate in regional studies as described in findings (under Cyanide) above. The Discharger shall also investigate the relationship between cyanide formation and chlorine dose, as chlorine dosage is reduced under this permit's new bacterial limits. Results from these studies should enable the Board to determine compliance with final WQBELS during the next permit reissuance.	Annual progress reports with the first report due February 28, 2004
b. *SSO Study.* The Discharger shall actively participate in the development of regional SSOs for cyanide.	Annual progress reports by cyanide work group with the first report due January 31, 2004
c. Conduct evaluation of compliance attainability with appropriate final limitations.	Within 2 years of permit adoption.

4. Bis(2-ethylhexyl)phthalate Laboratory Analysis Study

The Discharger shall conduct a study to ensure that future laboratory sampling, sample handling, and sample analysis for bis(2-ethylhexyl)phthalate (BEHP) accurately and precisely represent the Discharger's final effluent. A study workplan must be approved by the Executive Officer and the study will address whether past BEHP laboratory techniques were erroneous. Consequently, if new BEHP measurements conducted under this special study are determined to be adequate and valid, Board staff may re-evaluate the reasonable potential for BEHP.

Tasks	Compliance Date
a. Develop a study workplan, acceptable to the Executive Officer, to investigate laboratory sampling and analysis techniques for BEHP.	Within 6 months after permit adoption
b. Following approval by the Executive Officer, commence work in accordance with the study workplan and time schedule submitted pursuant of Task a.	Within 6 months after approval of study workplan by Executive Officer
c. Submit a final report, acceptable to the Executive Officer, documenting the findings of the study described above.	18 months following commencement of data collection

5. Pollutant Prevention and Minimization Program (PMP)

a. The Discharger shall continue to conduct and improve its existing Pollution Prevention Program to reduce loadings of pollutants such as copper, mercury, cyanide, bis(2-ethylhexyl)phthalate, heptachlor epoxide, 4,4'-DDE, and dieldrin to the WWTP and therefore to the receiving waters.

b. The Discharger shall submit an annual report, acceptable to the Executive Officer, no later than February 28th of each year. Annual reports shall cover January through December of the preceding year. Annual reports shall include at least the following information:

(i) *A brief description of its WWTP, WWTP processes and service area.*

(ii) *A discussion of the current pollutants of concern.* Periodically, the Discharger shall analyze its own situation to determine which pollutants are currently a problem and/or which pollutants may be potential future problems. This discussion shall include the reasons why the pollutants were chosen.

(iii) *Identification of sources for the pollutants of concern.* This discussion shall include how the Discharger intends to estimate and identify sources of the pollutants. The Discharger shall also identify sources or potential sources not directly within the ability or authority of the Discharger to control such as pollutants in the potable water supply and air deposition.

(iv) *Identification of tasks to reduce the sources of the pollutants of concern.* This discussion shall identify and prioritize tasks to address the Discharger's pollutants of concern. The Discharger may implement tasks themselves or participate in group, regional, or national tasks that will address its pollutants of concern. The Discharger is strongly encouraged to participate in group, regional, or national tasks that will address its pollutants of concern whenever it is efficient and appropriate to do so. A time line shall be included for the implementation of each task.

(v) *Outreach to employees.* The Discharger shall inform employees about the pollutants of concerns, potential sources, and how they might be able to help reduce the discharge of pollutants of concern into the WWTP. The Discharger may provide a forum for employees to provide input to the Program.

(vi) *Continuation of a public outreach program.* The Discharger shall continue its public outreach program to communicate pollution prevention to its service area. Outreach may include participation in existing community events such as county fairs, initiating new community events such as displays and contests during Pollution Prevention Week, conducting school outreach program, conducting WWTP tours, and providing public information in newspaper articles or advertisements, radio, television stories or spots, newsletters, utility bill inserts, and web site. Information shall be specific to the target audiences. The Discharger shall coordinate with other agencies as appropriate.

(vii) *Discussion of criteria used to measure the Program's and tasks' effectiveness.* The Discharger shall establish criteria to evaluate the effectiveness of its Pollution Prevention Program. This shall also include a discussion of the specific criteria used to measure the effectiveness of each of the tasks in item b. (iv), b. (v), and b. (vi).

(viii) *Documentation of efforts and progress.* This discussion shall detail all of the Discharger's activities in the Pollution Prevention Program during the reporting year.

(ix) *Evaluation of Program's and tasks' effectiveness.* The Discharger shall utilize the criteria established in b. (vii) to evaluate the Program's and tasks' effectiveness.

(x) *Identification of specific tasks and time schedules for future efforts.* Based on the evaluation, the Discharger shall detail how it intends to continue or change its tasks to more effectively reduce the amount of pollutants to the WWTP, and subsequently in its effluent.

c. According to Section 2.4.5 of the SIP, when there is evidence that a priority pollutant is present in the effluent above an effluent limitation and either:

(i) A sample result is reported as detected, but not quantified (less than the Minimum Level) and the effluent limitation is less than the reported Minimum Level,

(ii) A sample result is reported as not detected (less than the Method Detection Limit) and the effluent limitation is less than the Method Detection Limit; or,

(iii) The dioxin TEQ exceeds the WQO (0.014 pg/L).

the Discharger shall expand its existing Pollution Prevention Program to include the reportable priority pollutant. A priority pollutant becomes a reportable priority pollutant when (1) there is evidence that it is present in the effluent above an effluent limitation and either (c)(i), c(ii), or (c) (iii) is triggered or (2) if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level.

d. If triggered by the reasons in c. above and notified by the Executive Officer, the Discharger's Pollution Prevention Program shall, within 6 months, also include:

(i) An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling, or alternative measures approved by the Executive Officer when it is demonstrated that source monitoring is unlikely to produce useful analytical data;

(ii) Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system, or alternative measures approved by the Executive Officer

when it is demonstrated that influent monitoring is unlikely to produce useful analytical data;

(iii) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;

(iv) Development of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and

(v) An annual status report that shall be sent to the RWQCB including:

1. All Pollution Prevention monitoring results for the previous year;
2. A list of potential sources of the reportable priority pollutant(s);
3. A summary of all actions undertaken pursuant to the control strategy; and
4. A description of actions to be taken in the following year.

e. To the extent that the requirements of the Pollution Prevention Program and the Pollutant Minimization Program overlap, the Discharger is allowed to continue, modify, or expand its existing Pollution Prevention Program to satisfy the Pollutant Minimization Program requirements.

f. These Pollution Prevention/Pollutant Minimization Program requirements are not intended to fulfill the requirements in The Clean Water Enforcement and Pollution Prevention Act of 1999 (Senate Bill 709).

6. Whole Effluent Acute Toxicity

Compliance with acute toxicity requirements of this Order shall be achieved in accordance with the following:

a. Compliance with the acute toxicity effluent limits of this Order shall be evaluated by measuring survival of test organisms exposed to 96-hour continuous flow-through bioassays. If the Discharger will use static renewal tests, they must submit a technical report within 90 days of the effective date of this permit, identifying the reasons why flow-through bioassays are not feasible using the approved U.S. EPA protocol, currently 5th edition.

b. Test organisms shall be fathead minnows unless specified otherwise in writing by the Executive Officer.

All bioassays shall be performed according to the most up-to-date protocols in 40 CFR Part 136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms,"5th Edition, except that the Discharger may continue to use 4th Edition methods for up to 1 year following adoption of this permit. Upon the Discharger's request with justification, exceptions may be granted to the Discharger by the Executive Officer and the Environmental Laboratory Accreditation Program (ELAP).

7. Whole Effluent Chronic Toxicity

The Discharger shall monitor and evaluate the effluent from the treatment plant for chronic toxicity in order to demonstrate compliance with the Basin Plan narrative toxicity objective. Compliance with this requirement shall be achieved in accordance with the following.

a. The Discharger shall conduct routine chronic toxicity monitoring in accordance with the SMP of this Order.

b. If data from routine monitoring exceed either of the following evaluation parameters, then the Discharger shall conduct accelerated chronic toxicity monitoring. Accelerated monitoring shall consist of monitoring at frequency intervals of one half the interval given for routine monitoring in the SMP of this Order.

c. Chronic toxicity evaluation parameters:
   (1) A three sample median value of 1 TU_c; and
   (2) A single sample maximum value of 2 TU_c.
   (3) These parameters are defined as follows:
      (a) Three-sample median: A test sample showing chronic toxicity greater than 1 TU_c represents an exceedance of this parameter, if one of the past two or fewer tests also show chronic toxicity greater than 1 TU_c.

      (b) TU_c (chronic toxicity unit): A TU_c equals 100/NOEL (e.g., If NOEL = 100, then toxicity = 1 TUc). NOEL is the no observed effect level determined from IC, EC, or NOEC values.

      (c) The terms IC, EC, NOEL and NOEC and their use are defined in **Attachment A** of the Self-Monitoring Program (SMP).

d. If data from accelerated monitoring tests are found to be in compliance with the evaluation parameters, then routine monitoring shall be resumed.

e. If accelerated monitoring tests continue to exceed either evaluation parameter, then the Discharger shall initiate a chronic toxicity reduction evaluation (TRE).

f. The TRE shall be conducted in accordance with the following:

   (1) The Discharger shall prepare and submit to the Board for Executive Officer approval a TRE workplan. An initial generic workplan shall be submitted within 120 days of the date of adoption of this Order. The workplan shall be reviewed and updated as necessary in order to remain current and applicable to the discharge and discharge facilities.

   (2) The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test observed to exceed either evaluation parameter.

   (3) The TRE shall be conducted in accordance with an approved workplan.

   (4) The TRE needs to be specific to the discharge and Discharger facility, and may be in accordance with current technical guidance and reference materials including U.S. EPA guidance materials. TRE should be conducted as a tiered evaluation process, such as summarized below:
      (a) Tier 1 consists of basic data collection (routine and accelerated monitoring).
      (b) Tier 2 consists of evaluation of optimization of the treatment process including operation practices, and in-plant process chemicals.
      (c) Tier 3 consists of a toxicity identification evaluation (TIE).
      (d) Tier 4 consists of evaluation of options for additional effluent treatment processes.
      (e) Tier 5 consists of evaluation of options for modifications of in-plant treatment processes.
      (f) Tier 6 consists of implementation of selected toxicity control measures, and follow-up monitoring and confirmation of implementation success.

(5) The TRE may be ended at any stage if monitoring finds there is no longer consistent toxicity.

(6) The objective of the TIE shall be to identify the substance or combination of substances causing the observed toxicity. All reasonable efforts using currently available TIE methodologies should be employed.

(7) As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity evaluation parameters.

(8) Many recommended TRE elements parallel required or recommended efforts of source control, pollution prevention and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements or recommended efforts of such programs may be acceptable to comply with TRE requirements.

(9) The Board recognizes that chronic toxicity may be episodic and identification of causes of and reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Board will be based in part on the Discharger's actions and efforts to identify and control or reduce sources of consistent toxicity.

g. Chronic Toxicity Monitoring Screening Phase Requirements, Critical Life Stage Toxicity Tests and definitions of terms used in the chronic toxicity monitoring are identified in **Attachment A** of the SMP. The Discharger shall comply with these requirements as applicable to the discharge.

8. Chronic Toxicity Evaluation

The Discharger shall comply with the following tasks and schedule:

Tasks	Schedule
a. The Discharger shall submit a study plan, acceptable to the Executive Officer, which shall include the protocols for implementation of the tasks specified in Provision E. 7. f(4) above (including selection of the appropriate effluent sample for Tier 3 TIE investigation). The Discharger is exempt from the accelerated monitoring requirements of Provision E.7 during the course of any Tier 3 TIE investigation.	Within 60 days of permit adoption.
b. The Discharger shall submit a report, acceptable to the Executive Officer, identifying probable sources of chronic toxicity observed in the effluent, based on the results of the TRE/TIE work. The Discharger's report shall also include a plan to develop and implement additional measures aimed at consistently achieving the chronic toxicity levels described in B.8.a(2).	Within one year after approval of study plan by the Executive Officer.

9. Mercury Mass Loading Reduction

If mass loading for mercury exceeds the trigger level specified in B.10 of this Order, then the following actions shall be initiated and subsequent reports shall include but not be limited to the following:

a. *Notification.* Any exceedance of the trigger specified in Effluent Limitation B.10.b. shall be reported to the Regional Board in accordance with Section E.6.b. in the Standard Provisions and Reporting Requirements (August, 1993).

b. *Identification of the problem.* Immediately resample to verify the increase in loading. If resampling confirms that the mass loading trigger has been exceeded, determine whether the exceedance is flow or concentration-related. If the exceedance is flow related, identify whether it is related to changes in reclamation, increase in the number of sewer connections, increases in infiltration and inflow (I/I), wet weather conditions or unknown sources. If the exceedance is concentration-related, identify whether it is related to industrial, commercial, residential or unknown sources.

c. *Investigation of corrective action.* Investigate the feasibility of the following actions:
(1) Reducing inflow and infiltration (I/I)
(2) Increasing reclamation
Within 60 days after confirmed exceedance of trigger, develop a plan and include time schedule as short as practicable, acceptable to the Executive Officer to implement all reasonable actions to maintain mercury mass loadings at or below the mass loading trigger contained in Effluent Limitation B.10.b.

d. *Investigation of aggressive prevention/reduction measures.* In the event the exceedance is related to growth and the plan required under (c) above is not expected to keep mercury loads below the mass load trigger, the Discharger shall submit a plan, acceptable to the Executive Officer. The plan should include an initiative to work with the local planning department to investigate the feasibility and potential benefits of requiring water conservation, reclamation, and dual plumbing for new development. This plan should be implemented as soon as practicable.

10. Copper Study and Schedule - Regional Site-Specific Objective Study for Copper

The Discharger shall continue its participation in the regional discharger-funded effort to develop site-specific saltwater aquatic life-based WQO for copper in San Francisco Bay north of the Dumbarton Bridge, as described in Finding 50. The Discharger shall also participate in the development of Copper Action Plans designed to ensure that unacceptable changes in copper concentrations will not occur in the Bay in the future as a result of controllable discharges. The Action Plan shall describe baseline actions for wastewater and storm water dischargers and a program of monitoring and additional actions by these dischargers triggered by specific increases in ambient copper concentrations.

11. Bacteriological Studies

The Discharger is required to conduct a confirmation study to demonstrate that:

(1) the enterococcus limits included in this Order are protective of the designated uses of the receiving water, and

(2) the receiving water downstream is consistent with the U.S. EPA water contact scenario of "lightly used area." To demonstrate that the limits are protective of the receiving water uses, the study must specifically include water quality monitoring upstream and downstream of the discharges.

The Discharger shall submit the confirmation study, acceptable to the Executive Officer, no later than December 31, 2004.

12. Collection System Improvements

By April 1, 2004, the Discharger shall prepare and submit a report to the Board identifying specific ongoing and planned projects to the collection system that will reduce infiltration and inflow. The report should specifically address:

a. Ongoing projects and those completed within the past year, and progress towards reducing infiltration and inflow,

b. Additional opportunities for improvements, including expected feasibility, cost, and benefits, and,

c. Planned projects for the next year and following years, including scheduled completion dates

The Discharger shall submit updated reports to the Board prior to February 28th of each succeeding year of this Order.

13. Wastewater Treatment Facility Improvements

By April 1, 2004, the Discharger shall prepare and submit a report to the Board identifying specific ongoing and planned projects at the WWTP to improve facility performance and reliability. The report should specifically address:

a. Adequate reliability, capacity and performance of the completed or planned improvement with time schedules to the collection system, treatment facility, and disposal facilities, and progress towards improving treatment system performance, and

b. Additional opportunities for improvements, including expected feasibility, cost, and benefits.

In identifying and selecting projects for design and construction, the Discharger must specifically address the following topics: (1) providing for greater redundancy throughout the treatment process, (2) improving the quality of discharge and reclamation water during the dry season, including improved consistency in the quality of water delivered to the MMWD reclamation plant, and (3) enhancing the reliability, consistency, and capacity to adequately treat the discharges during the wet season.

The Discharger shall submit an updated report to the Board by February 28th of each succeeding year of this Order. This annual update may be satisfied by submitting the annual Wastewater Facilities, Review and Evaluation, and Status Report as specified in Provision E.19 Below.

14. Dry Weather Flow Capacity Analysis

If the Discharger plans to increase the dry weather flow design capacity, the Discharger shall submit an engineering report, no later than 6 months prior to a planned increase, which shall include, but not limited to, the following information, for approval by the Executive Officer:

a. Up to date report addressing the requirements as specified in Provision E. 13 above,

b. Documentation that any proposed increase in discharges (evaluation must include assessment of wet weather flow) will not violate the State Board's antidegradation policy, SWRCB Resolution No. 68-16;

c. Ambient toxicity testing as appropriate and necessary;

d. An investigation of the possibilities of expanding the Discharger's reclamation program to further reduce discharge to the Bay; and,

e. Documentation of compliance schedule with the California Environmental Quality Control Act.

15. Reduction of Non-discharge Season and Reclamation Plan

In the event that reclaimed water opportunities diminish, or other mitigation factors are demonstrated (i.e., plant upgrade, increased restoration), upon request by the Discharger, the Executive Officer will approve modifying the non-discharge season from 5 months to 3 months. The Discharger's request shall comply with the following tasks and schedules:

Tasks	Schedule
a. Submit a request acceptable to the Executive Officer to justify the need to reduce the non-discharge season.	No later than 2 months prior to the commencement of the non-discharge season.
b. Develop and submit a reclamation study plan acceptable to the Executive Officer to identify and pursue all reasonable opportunities to maximize reclamation and reuse of treated wastewater. The plan should specifically address: i). A description of flows for all ongoing reclamation activities conducted within the past year, ii). Additional opportunities for reclamation, including expected feasibility, cost, and benefits (i.e., discharge flow reductions), and, iii). Planned projects for the next year and following years, including scheduled completion dates.	If request (a) above is approved, the Study Plan is due within 90 days and should be updated and submitted annually.

16. Wildlife and Reclamation Storage Pond Operation

The Discharger shall manage the wildlife (or marsh) and reclamation ponds in accordance with the following:

a. The Discharger has constructed and maintains a wildlife pond. Effluent discharged to the storage ponds from November 1 and May 31 shall meet all requirements prescribed in this Order. If wastewater is stored in the wildlife pond during the reclamation season, for eventual discharge to Miller Creek, then this wastewater shall meet all requirements prescribed in this Order. Effluent discharged to the wildlife or storage ponds during this Order's specified non-discharge months (June through October) and during any voluntary non-discharge month (e.g. May) may meet the reclamation requirements prescribed in a separate Order. At other times (than the three previously prescribed conditions), waste discharged to the wildlife pond may meet the reclamation requirements prescribed in a separate order, (except for residual chlorine).

b. No discharge to the wildlife ponds shall be made when flows to the WWTP exceed 6 MGD.

c. Wastewater in the reclamation storage ponds may be discharged through the outfalls from November 1 through May 31 only upon satisfying either of the following conditions:

(1) The Discharger receives written approval from the Executive Officer after demonstrating to his/her satisfaction that such discharge is necessary for prudent operation and maintenance of the storage and irrigation facilities, will be made in a way that has the least adverse effect on the environment, and has received the treatment required in the reclamation requirements; or

(2) The discharge is surplus wastewater remaining in the reclamation storage ponds at the end of the reclamation season. In this case, wastewater discharged to the reclamation pond for the month preceding the onset of such discharge shall meet all requirements prescribed in this Order.

d. The Discharger may operate the marsh pond such that pond water levels may be maintained at lower levels, effluent from the treatment plant will be used to maintain levels, and sampling will be conducted at the perimeter of the pond. The following conditions shall be satisfied:

(1) To guard against predation, water levels shall be kept sufficiently high such that land bridges to nesting areas are unable to form;

(2) The marsh shall be managed such that dissolved oxygen concentrations are not reduced as a result of the lowered marsh water levels; and

(3) Operation and maintenance of the marsh and storage ponds shall continue in accordance with the existing operation plan, except as expressly allowed in this provision.

17. Miller Creek Public Access

The Discharger shall inspect and maintain as needed the following measures which have been required to reduce the likelihood of public contact with Miller Creek receiving waters:

a. Signs posted at regular intervals along the levee pathway adjacent to Miller Creek. The signs should inform the public of the presence of treated wastewater and advise against public contact.

b. Erect fencing or other suitable barriers at locations where pedestrian access from the pathway to Miller Creek is readily available to discourage public contact.

18. Optional Mass Offset

The Discharger may submit to the Board for approval a mass offset plan to reduce 303(d)-listed pollutants to the same watershed or drainage basin. The Board may modify this Order to allow an approved mass offset program.

19. Wastewater Facilities, Review and Evaluation, and Status Reports

a. The Discharger shall operate and maintain its wastewater collection, treatment and disposal facilities in a manner to ensure that all facilities are adequately staffed, supervised, financed, operated, maintained, repaired, and upgraded as necessary, to provide adequate and reliable transport, treatment, and disposal of all wastewater from both existing and planned future wastewater sources under the Discharger's service responsibilities.

b. The Discharger shall regularly review and evaluate its wastewater facilities and operation practices in accordance with section a. above. Reviews and evaluations shall be conducted as an ongoing component of the Discharger's administration of its wastewater facilities.

c. The Discharger shall submit an Annual Report to the Board a report describing the current status of its wastewater facility review and evaluation, including any recommended or planned actions and an estimated time schedule for these actions. This report shall include a description or summary of review and evaluation procedures, and applicable wastewater facility programs or capital improvement projects. This report shall be submitted in accordance with the Annual Status Report Provision below.

20. Operations & Maintenance Manual Review and Status Reports

a. The Discharger shall maintain an Operations and Maintenance Manual (O & M Manual) for the Discharger's wastewater facilities. The O & M Manual shall be maintained in useable condition, and available for reference and use by all applicable personnel.

b. The Discharger shall regularly review, and revise or update as necessary, the O & M Manual(s) in order for the document(s) to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and revisions or updates shall be completed as necessary. For any significant changes in treatment facility equipment or operation practices, applicable revisions shall be completed within 90 days of completion of such changes.

c. Annually, the Discharger shall submit to the Board a letter describing the current status of its O & M Manual review and updating. This letter shall include an estimated time schedule for completion of any revisions determined necessary, a description of any completed revisions, or a statement that no revisions are needed..

21. Contingency Plan Review and Status Reports

a. The Discharger shall maintain a Contingency Plan as required by Board Resolution 74-10 (attached), and as prudent in accordance with current industrial facility emergency planning. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or adequately implement a contingency plan will be the basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

b. The Discharger shall regularly review, and update as necessary, the Contingency Plan in order for the plan to remain useful and relevant to current equipment and operation practices. Reviews shall be conducted annually, and updates shall be completed as necessary.

c. Each year the Discharger shall submit to the Board a letter describing the current status of its Contingency Plan review and update. This letter shall include a description or copy of any completed revisions, or a statement that no changes are needed.

22. Annual Status Reports

The annual reports identified in Provisions 19.c, 20.c, and 21.c, above, shall be submitted to the Board by June 30 of each year. Modification of report submittal dates may be authorized, in writing, by the Executive Officer.

23. 303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review

The Discharger shall participate in the development of a TMDL or SSO for mercury, selenium, 4,4'-DDE, dieldrin, PCBs, and diazinon. By January 31 of each year, the Discharger shall submit an update to the Board to document efforts made in participation in the development of TMDLs and/or site-specific objectives. Active participation by the Discharger in the Clean Estuary Partnership (CEP) will be considered to fulfill the requirements of this provision. The Discharger, along with other CEP partners, may elect to annually report TMDL progress collectively through the partnership. Board staff shall review the status of TMDL development. This Order may be reopened in the future to reflect any changes required by TMDL development.

24. Self-Monitoring Program

The Discharger shall comply with the Self-Monitoring Program (SMP) for this Order as adopted by the Board. The SMP may be amended by the Executive Officer pursuant to U.S. EPA regulations 40 CFR 122.63.

25. Standard Provisions and Reporting Requirements

The Discharger shall comply with all applicable items of the Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993 (which is available online), or any amendments thereafter. Where provisions or reporting requirements specified in this Order are different from equivalent or related provisions or reporting requirements given in 'Standard Provisions', the specifications of this Order shall apply.

26. Change in Control or Ownership

a. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Board.

b. To assume responsibility of and operations under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order (see Standard Provisions & Reporting Requirements, August 1993, Section E.4.). Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.

27. Permit Reopener

The Board may modify or reopen this Order and Permit prior to its expiration date in any of the following circumstances:

(1) If present or future investigations demonstrate that the discharge(s) governed by this Order and Permit will or have a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;

(2) New or revised WQOs come into effect for the San Francisco Bay estuary and contiguous water bodies (whether statewide, regional, or site-specific). In such cases, effluent limits in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limits contained in this Order and Permit is not intended to restrict in any way future modifications based on legally

adopted WQOs or as otherwise permitted under Federal regulations governing NPDES permit modifications;

(3) If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on this basis. The Discharger shall include in any such request an anti-degradation and anti-backsliding analysis.

28. NPDES Permit

This Order shall serve as a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective on January 1, 2004, provided the U.S. EPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

29. Order Expiration and Reapplication

a. This Order expires on November 30, 2008.

b. In accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code, the Discharger must file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissue of this permit and waste discharge requirements.

I, Bruce Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on December 3, 2003.

BRUCE H. WOLFE
EXECUTIVE OFFICER

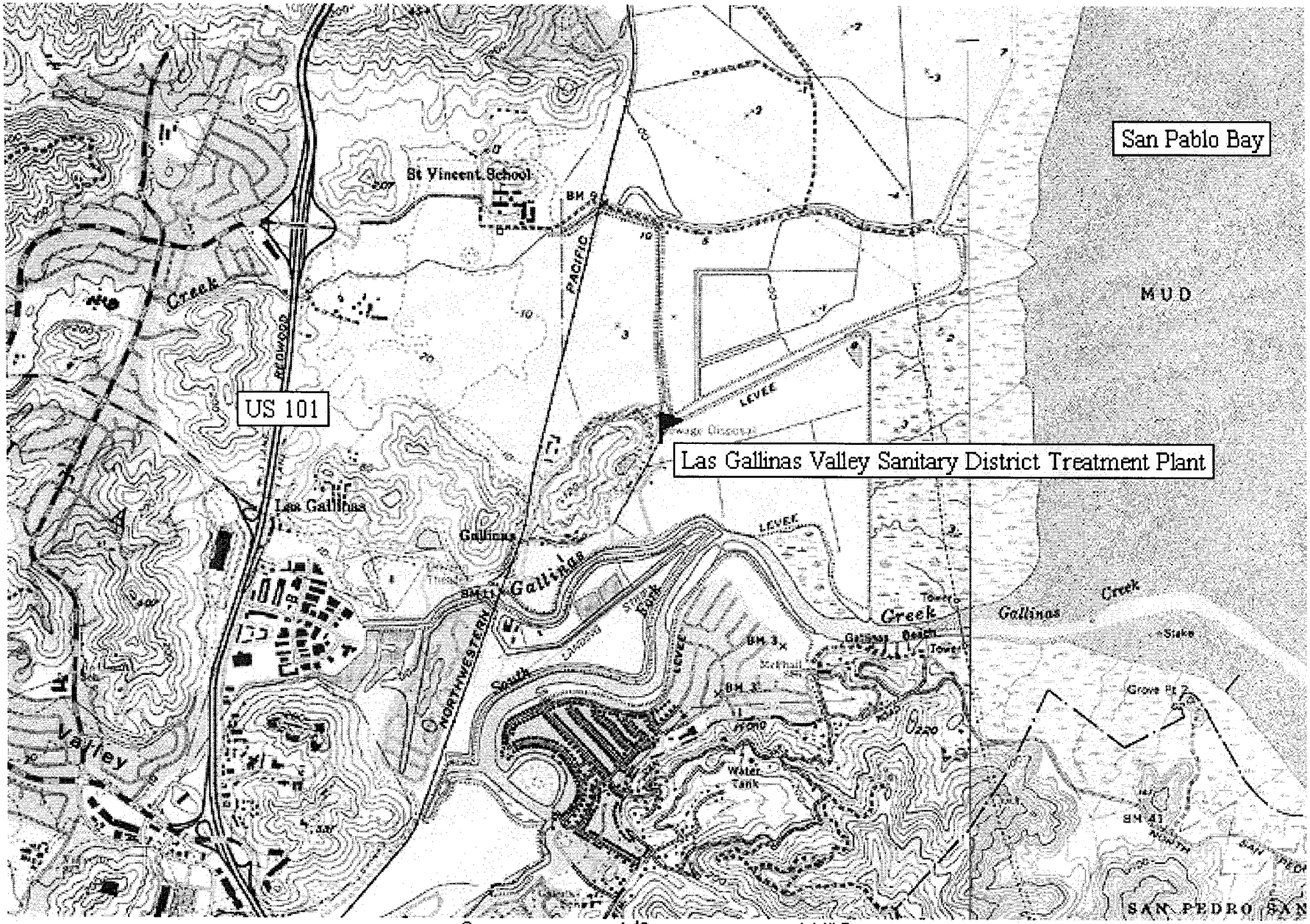
Attachments:

A. Discharge Facility Location Map
B. Discharge Facility Treatment Process Diagram
C. Self-Monitoring Program, Part B
D. Fact Sheet
E. Self-Monitoring Program, Part A*
F. Standard Provisions and Reporting Requirements, August 1993*
G. Board Resolution No. 74-10*
H. Las Gallinas Valley Sanitary District Final Effluent Limits Infeasibility Study
I. Mercury Staff Report*

* Note: Self-Monitoring Program Part A (August 1993), Standard Provisions and Reporting Requirements (August 1993), Resolution No. 74-10, and Mercury Staff Report are not attached but are available for review or download on the Board's website at *www.swrcb.ca.gov/rwqcb2*."

Attachment A

Discharge Facility Location Map



Attachment B

Discharge Facility Treatment Process Diagram

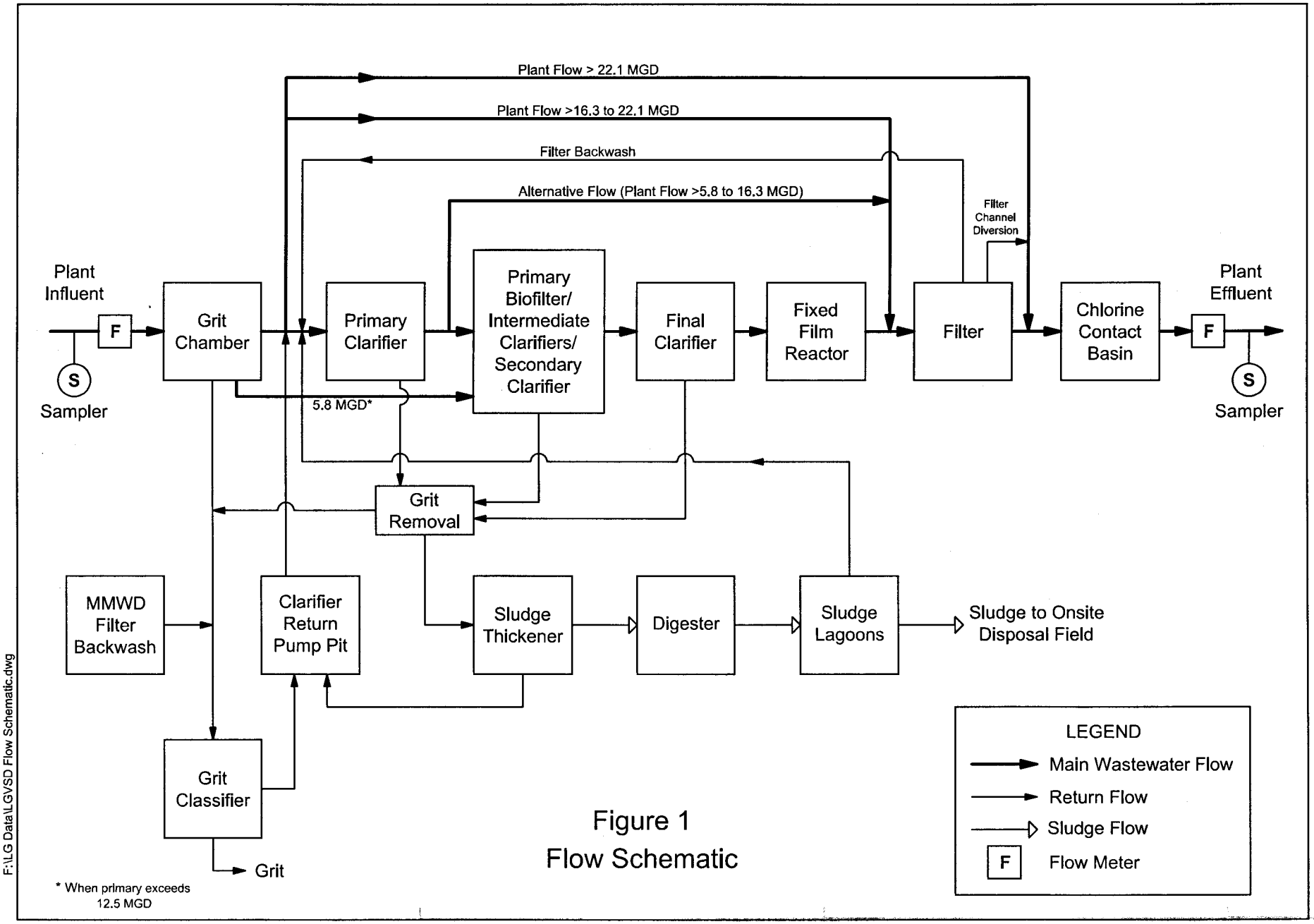


Figure 1
Flow Schematic

F:\LG Data\LGVSD Flow Schematic.dwg

Attachment C

Self-Monitoring Program, Part B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

LAS GALLINAS VALLEY SANITARY DISTRICT
MARIN COUNTY

NPDES PERMIT NO. CA0037851

ORDER NO. R2-2003-0108

CONSISTS OF

PART B

Note: Self-Monitoring Program Part A (August 1993), Standard Provisions and Reporting Requirements (August 1993), and Resolution No. 74-10, are not attached but are available for review or download on the Board's website at www.swrcb.ca.gov/rwqcb2.

SELF-MONITORING PROGRAM
PART B

I. DESCRIPTION OF SAMPLING STATIONS

A. INFLUENT

Station	Description
A-1	At any point in the treatment facilities headworks at which all waste tributary to the treatment system is present, and preceding any phase of treatment.

B. EFFLUENT

Station	Description
E-001	At a point in the outfall from the treatment facilities between the point of discharge and the point at which point all flow tributary to that outfall is present (May be the same as E-001-D and E-001-S). E-001 includes that portion of flow discharged via effluent box at E-002 if plant is discharging directly to Miller Creek
E-001-D	At a point in the disinfection facilities, at which point adequate contact with the disinfectant is assured.
E-001-S	At a point in the treatment and disposal facilities following dechlorination.
E-002	This location can serve several functions: 1) Alternate point for discharge to Miller Creek (same flow as E-001); 2) discharge to storage ponds, and 3) discharge from storage pond to Miller Creek.

C. RECEIVING WATERS

Station	Description
C-2	At a point in Miller Creek, located within 20 feet downstream from the discharge point E-002. The E-002 discharge point is used when final effluent is directed to the storage pond before discharge to Miller Creek.
C-3	At a point in Miller Creek, located within 1000 feet upstream of discharge point E-002.

D. TREATMENT PLANT PERIMETER (Land Observations)

Station	Description
P-1, to	Points located at the corners and at midpoints of the perimeter

P-'n' of the wastewater treatment facilities at equidistant intervals, not to exceed 200 feet.

NOTE: A drawing showing the locations of these stations shall be included in the Annual Report, and in the monthly report if stations change.

E. OVERFLOWS

Station	Description
O-1 through O-'n'	At points in the collection system, such as pump stations and manholes, or any other locations where overflows and bypasses occur.

II. SCHEDULE OF SAMPLING, ANALYSIS AND OBSERVATION

The schedule of sampling, analysis and observation shall be that given in Table 1 below.

TABLE 1 SCHEDULE OF SAMPLING, MEASUREMENT, AND ANALYSIS

Sampling Station:	**A-1**		**E-001, E-001-D, E-001-S**			**E-002**	**All C Stations**	**All P Stations**	**O**
Type of Sample: [notes]	**C-24**	**Cont.**	**G**	**C-24**	**Cont.**	**Cont.**	**G**	**G**	**G**
Sampling Required:	**Year-round**		**While Discharging to Miller Creek (M.C.)**			**While Discharging from Storage Ponds to M.C.**	**While Discharging to M.C.**	**Year-round**	**Year-round**
Flow Rate (mgd) [1]		D			D	D			
BOD, 5-day, 20 deg. C (mg/l)	1/W [2]			1/W [2]					
Total Susp. Solids (mg/l)	5/W [2]			5/W [2]					
Settleable Solids (ml/l-hr)			M						
Oil and Grease (mg/l & kg/d)			M [3]						
Chlorine Residual (mg/l)				Cont/2H [4a]		[4b]			
Enterococcus (colonies/100 ml)			5/W [5]						
pH (Standard Units)			D				M		
Temperature (degrees C)			D				M		
Dissolved Oxygen (mg/l & %-Saturation)			D				M		
Total & Dissolved Sulfides (mg/l)			D [6]				M[6]		
Total Dissolved Solids (mg/L)							M		
Turbidity							M		
Chlorophyll-a (µg/L)							M		
Acute Toxicity (% Survival)				M [7]					
Chronic Toxicity				Q [8]					

Sampling Station:	**A-1**		**E-001, E-001-D, E-001-S**			**E-002**	**All C Stations**	**All P Stations**	**O**
Type of Sample: [notes]	**C-24**	**Cont.**	**G**	**C-24**	**Cont.**	**Cont.**	**G**	**G**	**G**
Sampling Required:	**Year-round**		**While Discharging to Miller Creek (M.C.)**			**While Discharging from Storage Ponds to M.C.**	**While Discharging to M.C.**	**Year-round**	**Year-round**
Chromium (µg/l & kg/d) (hexavalent or total)				M					
Copper (µg/l & kg/d)				M					
Cyanide (µg/l & kg/d)			M [9]						
Lead (µg/l & kg/d)				M					
Mercury (µg/l, kg/day, & kg/month)			M [10]						
Nickel (µg/l & kg/d)				M					
2,3,7,8-TCDD and Congeners (µg/l)			2/Y [11]						
Bis(2-Ethylhexyl)Phthalate (µg/l)			2/Y						
4, 4'-DDE (µg/l)			2/Y						
Dieldrin (µg/l)			2/Y						
Heptachlor Epoxide (µg/l)			2/Y						
Table 1 Selected Constituents (except those listed above)			As specified in August 6, 2001 Letter [12]						
Ammonia Nitrogen (mg/l and kg/d)			M				M		
Unionized Ammonia Nitrogen (mg/l)							M		
Standard Observations							M	M	E
Hardness as $CaCO_3$ (mg/l)							M		

LEGEND FOR TABLE 1:

Types of Samples
- Co = Continuous
- C-24 = 24-hour Composite
- G = Grab
- Ob = Observations

Types of Stations
- A = Treatment Plant Influent
- E = Treatment Plant Effluent
- O = Overflow and Bypass Points
- P = Treatment Facility Perimeters
- C = Receiving Waters

Frequency of Sampling
- D = Once each day
- W = Once each week
- M = Once each month
- A = Once each year
- Q = Once each calendar quarter (with at least 2 month intervals)
- E = Each occurrence
- 3/W = 3 days per week
- 2H = Every 2 hours
- 5/week = 5 days per week

FOOTNOTES FOR TABLE 1:

1. Flows shall be monitored continuously and the following shall be reported in monthly self-monitoring reports:

   a. Influent, average daily flow (A-1);
   b. Influent, maximum and minimum flow rates and times of occurrence (A-001); and
   c. Effluent, daily flow (E-001).
   d. Effluent, daily flow (E-002) while there is discharge to Miller Creek from the storage ponds

2. The percent removal for BOD and TSS shall be reported for each calendar month, in accordance with Effluent Limitation B.5.

3. Oil and grease: Each Oil & Grease sample event shall consist of a composite sample comprised of three grab samples taken at equal intervals over hours that the WWTP is staffed during the sampling date, with each grab sample being collected in a glass container. Each glass container used for sample collection or mixing shall be thoroughly rinsed with solvent rinsings as soon as possible after use, and the solvent rinsings shall be added to the composite sample for extraction and analysis.

4. a. Chlorine residual: Monitor dechlorinated effluent continuously or, at a minimum, every 2 hours. Report, on a daily basis, both maximum and minimum concentrations, for samples taken both prior to, and following dechlorination. If a violation is detected, the maximum and average concentrations and duration of each non-zero residual event shall be reported, along with the cause and corrective actions taken. Total chlorine dosage (kg/day) shall be recorded on a daily basis.

   b. Chlorine residual for discharges to Miller Creek from the storage ponds: Grab samples shall be taken and recorded daily while there is discharge to Miller Creek from the storage ponds through E-002. The first grab sample shall be taken immediately prior to a discharge, and additional samples shall be taken if effluent is sent to the storage ponds while there is an ongoing discharge in addition to the daily sampling requirement.

5. Once the Discharger has collected 24 months of data demonstrating consistent compliance with the effluent bacterial limitations, the Discharger may submit a request to the Executive Officer for a reduction in sampling frequency.

6. Sulfide analysis shall be run when dissolved oxygen concentrations fall below 2.0 mg/L.

7. Bioassays: Effluent used for fish bioassays must be dechlorinated prior to testing. Monitoring of the bioassay water shall include, on a daily basis, the parameters specified in the EPA approved method, such as, pH, dissolved oxygen, ammonia nitrogen, and temperature. These results shall be reported. If the fish survival rate in the effluent is less than 70% or if the control fish survival rate is less than 90%, bioassay test shall be restarted with new batches of fish and continue back to back until compliance is demonstrated.

8. Critical Life Stage Toxicity Test shall be performed and reported in accordance with the Chronic Toxicity Requirements specified in Sections V and VI of the Self-Monitoring Program contained

in this Order.

9. Cyanide: the Discharger may, at their option, analyze for cyanide as Weak Acid Dissociable Cyanide using protocols specified in Standard Method Part 4500-CN-I, or equivalent alternatives in latest edition. Alternative methods of analysis must be approved by the Executive Officer.

10. The Discharger may, at its option, sample effluent mercury either as grab or 24-hr composite. Use ultra-clean sampling (EPA 1669) to the maximum extent practicable, and ultra-clean analytical methods (EPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as EPA 245), if that alternate method has a Minimum Level of 2 ng/L or less.

11. Chlorinated Dibenzodioxins and Chlorinated Dibenzofurans shall be analyzed using the latest version of USEPA Method 1613; the analysis shall be capable of achieving one half the EPA MLs and the Discharger shall collect 4-liter samples to lower the detection limits to the greatest extent practicable. At a minimum, the Discharger is required to monitor twice a year for the life of this permit. Alternative methods of analysis must be approved by the Executive Officer.

12. Sampling for Table 1 Selected Constituents in the SIP is addressed in a letter dated August 6, 2001, from Board Staff: Requirements for Monitoring of Pollutants in Effluent and Receiving Water to Implement New Statewide Regulations and Policy. (Not attached, but available for review or download on the Board's website at www.swrcb.ca.gov/rwqcb).

Table 2 lists the Minimum Levels (SIP) of the priority constituents included in Table 1. For compliance monitoring, analyses shall be conducted using the lowest commercially available and reasonably achievable detection levels. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to the Minimum Levels given below. All Minimum Levels are expressed as µg/L, approximately equal to parts per billion (ppb).

Table 2. Minimum Levels (µg/l or ppb)

CTR #	Constituent [a]	Types of Analytical Methods [b]											
		GC	GCMS	LC	Color	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
5.	Chromium VI				10	5							
6.	Copper [c]					25	5	10	0.5	2			1000
7.	Lead					20	5	5	0.5	2			10,000
8.	Mercury [d]								0.5			0.2	
9.	Nickel					50	5	20	1	5			1000
14.	Cyanide				5								
68.	Bis(2-Ethylhexyl) Phthalate	10	5										
109	4,4-DDE	0.05											
111.	Dieldrin	0.01											
118.	Heptachlor Epoxide	0.01											
16.	2,3,7,8-TCDD (e)												

FOOTNOTES FOR TABLE 2:

(a) According to the SIP, method-specific factors (MSFs) can be applied. In such cases, this additional factor must be applied in the computation of the reporting limit. Application of such factors will alter the reported ML (as described in section 2.4.1). Dischargers are to instruct laboratories to establish calibration standards so that the ML value is the lowest calibration standard. At no time is the discharger to use analytical data derived from the extrapolation beyond the lowest point of the calibration curve.

(b) Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e. EPA 200.9); DCP = Direct Current Plasma.

(c) For copper, the Discharger may also use the following laboratory techniques with the relevant minimum level: GFAA with a minimum level of 5 µg/L and SPGFAA with a minimum level of 2 µg/L.

(d) Use ultra-clean sampling (EPA 1669) to the maximum extent practicable, and ultra clean analytical methods (EPA 1631) for mercury monitoring. The Discharger may use alternative methods of analysis (such as EPA 245), if the alternate method has a Minimum Limit of 2 ng/L or less.

(e) The SIP does not contain an ML for this constituent.

III. MODIFICATIONS to PART A of SELF-MONITORING PROGRAM

A. If any discrepancies exist between Part A and Part B of the SMP, Part B prevails.

B. The following sections of Part A: C.3., C.4., C.5. are satisfied by participation in the Regional Monitoring Program.

C. Section C.2.h of Part A shall be amended as follows:

h. When any type of bypass occurs (except for bypasses caused by high wet weather inflow), composite samples shall be collected on a daily basis for all constituents at all affected discharge points which have effluent limits for the duration of the bypass.

When bypassing occurs from any treatment process (primary, secondary, chlorination, dechlorination, etc.) in the treatment facilities during high wet weather inflow, the self-monitoring program shall include the following sampling and analyses:

i. When bypassing occurs from any primary or secondary treatment unit(s), composite samples for the duration of the bypass event for BOD and TSS analyses, and continuous monitoring of flow. If BOD or TSS, exceed the effluent limits, the bypass monitoring shall be expanded to include all constituents that have effluent limits for the duration of the bypass, until the BOD and TSS values stabilize to compliance with effluent limitations.

ii. When bypassing the chlorination process, grab samples at least daily for enterococcus analyses; and continuous monitoring of flow.

iii. When bypassing the dechlorination process, grab samples hourly for chlorine residual; and continuous monitoring of flow.

iv. In the event that single or multiple clarifiers, aeration basins, or other elements of a unit process are intentionally taken out of service for maintenance, flow routed around those elements does not constitute a bypass and does not trigger additional sampling.

D. Insert the following into Section D.1 of Part A:

The requirements of this section only apply when receiving water standard observations are specified in table 1 of Part B. Receiving water standard observations are not specified in Table 1 of Part B of this permit. Therefore, the requirements of this section do not apply.

E. Section D.3 of Part A, insert the following:

The requirements of this section only apply when beach and shoreline standard observations are specified in Table 1 of Part B. Beach and shoreline standard observations are not specified in Table 1 of Part B of this permit. Therefore, the requirements of this section do not apply.

F. Insert the following into Section D.5 of Part A:

The requirements of this section only apply when facility periphery standard observations are specified in Table 1 of Part B. Facility periphery standard observations are not specified in Table 1 of Part B of this permit. Therefore, the requirements of this section do not apply.

G. Amend Section G. of Part A, Definition of Terms, as follows:

a. *Grab Sample.* A grab sample is defined as an individual sample collected in a short period of time not exceeding fifteen minutes. A grab sample represents only the conditions that exist at the time the sample is collected. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may not necessarily correspond with periods of peak hydraulic conditions. Grab samples are used primarily in determining compliance with daily and instantaneous maximum or minimum limits.

b. *Composite Sample.* A composite sample is defined as a sample composed of individual grab samples collected manually or by an autosampling device on the basis of time and/or flow as specified in Table 1 of Part B. For flow-based compositing, the proportion of each grab sample included in the composite sample shall be within plus or minus five percent from the representative flow rate of the waste stream being sampled measured at the time of grab sample collection. Alternately, equal volume grab samples may be individually analyzed and the flow-weighted average calculated by averaging flow-weighted ratios of each grab sample analytical result. Grab samples forming time-based composite samples shall be collected at intervals not greater than those specified in Table 1 of Part B. The quantity of each grab sample forming a time-based composite sample shall be a set or flow proportional volume as specified in Table 1 of Part B. For Oil and Grease a minimum of four grab samples, one every six hours over a 24-hour period shall be used. If a particular time or flow-based composite sampling protocol is

not specified in Table 1 of Part B, the Discharger shall determine and implement the most representative sampling protocol for the given parameter subject to approval by the Executive Officer.

c. *Average.* Average values for daily and monthly values are obtained by taking the sum of all daily values divided by the number of all daily values measured during the specified period. In calculating the monthly average, when there is more than one value for a given day, all the values for that day shall be averaged and the average value used as the daily value for that day.

H. Modification to section F.4 of Part A: Self-Monitoring Report:

Monthly self-monitoring report: The purpose of the report is to document treatment performance, effluent quality and compliance with waste discharge requirements prescribed by this Order, as demonstrated by the monitoring program data and the discharger's operation practices. For each calendar month, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:

1. The report shall be submitted to the Board no later than 30 days from the last day of the reporting month.

2. *Letter of Transmittal:* Each report shall be submitted with a letter of transmittal. This letter shall include the following:

   a. Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;

   b. Details of the violations: parameters, magnitude, test results, frequency, and dates;

   c. The cause of the violations;

   d. Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory;

   e. Signature: The letter of transmittal shall be signed by the discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:

      "I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

3. *Compliance Evaluation Summary:* Each report shall include a compliance evaluation summary. This summary shall include, for each parameter for which effluent limits are specified in the Permit, the number of samples taken during the monitoring period, and the number of samples in violation of applicable effluent limits.

4. *Results of Analyses and Observations.*

   a. Tabulations of all required analyses and observations, including parameter, sample date and time, sample station, and test result;

   b. If any parameter specified in Table 1 of Part B is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period;

   c. Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.

5. *Effluent Data Summary – U.S. EPA NPDES Discharge Monitoring Reports:* Summary tabulations of monitoring data including maximum, minimum and average values for subject monitoring period shall be reported in accordance with the format given by the U.S. EPA NPDES Discharge Report(s) (DMRs; U.S. EPA Form 3320-1 or successor). Copies of these DMRs shall be provided to U.S. EPA as required by U.S. EPA.

6. *Data Reporting for Results Not Yet Available*: The discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in timely manner. The Board recognizes that certain analyses require additional time in order to complete analytical processes and result reporting. For cases where required monitoring parameters require additional time to complete analytical processes and reporting, and results are not available in time to be included in the SMR for the subject monitoring period, such cases shall be described in the SMR. Data for these parameters, and relevant discussions of any observed violations, shall be included in the next following SMR after the data become available.

7. *Report Submittal*: The discharger shall submit SMRs to:

   Executive Officer
   San Francisco Bay Regional Water Quality Control Board
   1515 Clay Street, Suite 1400
   Oakland, CA 94612
   Attn: NPDES Division

I. Modification to section F.5 of Part A: Annual Report:

An Annual Report shall be submitted for each calendar year. The report shall be submitted to the Board by February 28 of the following year. This report shall include the following:

1. Both tabular and graphical summaries of monitoring data collected during the calendar year that characterizes treatment plant performance and compliance with waste discharge requirements. Dischargers who have submitted data using the Electronic Reporting System for at least on calendar year, are exempt from this provision

2. A comprehensive discussion of treatment plant performance and compliance with waste discharge requirements. This discussion should include any corrective actions taken or planned such as changes to facility equipment or operation practices which may be needed to achieve compliance, and any other actions taken or planned that are intended to improve

performance and reliability of the discharger's wastewater collection, treatment or disposal practices.

J. Additions to Part A of Self-Monitoring Program:

1. Reporting Data in Electronic Format:

The Discharger has the option to submit all monitoring results in electronic reporting format approved by the Executive Officer. If the discharger chooses to submit the SMRs electronically, the following shall apply:

a. *Reporting Method:* The discharger shall submit SMRs electronically via the process approved by the Executive Officer in a letter dated December 17, 1999, Official Implementation of Electronic Reporting System (ERS).

b. *Modification of reporting requirements:* Reporting requirements F.4 in the attached *Self-Monitoring program, Part A*, dated August 1993, shall be modified as follows. In the future, the Board intends to modify Part A to reflect these changes.

c. *Monthly Report Requirements:* For each calendar month, a self-monitoring report (SMR) shall be submitted to the Board in accordance with the following:

i. The report shall be submitted to the Board no later than 30 days from the last day of the reporting month.

ii. *Letter of Transmittal:* Each report shall be submitted with a letter of transmittal. This letter shall include the following:

(1) Identification of all violations of effluent limits or other discharge requirements found during the monitoring period;
(2) Details of the violations: parameters, magnitude, test results, frequency, and dates;
(3) The cause of the violations;
(4) Discussion of corrective actions taken or planned to resolve violations and prevent recurrence, and dates or time schedule of action implementation. If previous reports have been submitted that address corrective actions, reference to such reports is satisfactory;
(5) Signature: The letter of transmittal shall be signed by the discharger's principal executive officer or ranking elected official, or duly authorized representative, and shall include the following certification statement:

> "I certify under penalty of law that this document and all attachments have been prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

(6) Compliance Evaluation Summary: Each report shall include a compliance evaluation summary. This summary shall include the number of samples in violation of applicable effluent limits.
(7) Results of Analyses and Observations.
(8) Tabulations of all required analyses and observations, including parameter, sample

date, sample station, and test result.

(9) If any parameter is monitored more frequently than required by this permit and SMP, the results of this additional monitoring shall be included in the monitoring report, and the data shall be included in data calculations and compliance evaluations for the monitoring period.

(10) Calculations for all effluent limits that require averaging of measurements shall utilize an arithmetic mean, unless specified otherwise in this permit or SMP.

d. *Data Reporting for Results Not Yet Available:* The Discharger shall make all reasonable efforts to obtain analytical data for required parameter sampling in timely manner. The Board recognizes that certain analyses require additional time in order to complete analytical processes and result reporting. For cases where required monitoring parameters require additional time to complete analytical processes and reporting, and results are not available in time to be included in the SMR for the subjected monitoring period, such cases shall be described in the SMR. Data for these parameters, and relevant discussions of any observed violations, shall be included in the next following SMR after the data become available.

2. Spill Reports:

A report shall be made of any spill of oil or other hazardous material.

The spill shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or discharger's knowledge of occurrence. Spills shall be reported by telephone as follows:

During weekdays, during office hours of 8 am to 5 pm, to Ray Balcom at the Regional Board:

Current telephone number: (510) 622 – 2312, (510) 622-2460 (FAX).

During non-office hours, to the State Office of Emergency Services:

Current telephone number: (800) 852 - 7550.

A written report shall be submitted to the Regional Board within five (5) working days following telephone notification, unless directed otherwise by Board staff. A report submitted by facsimile transmission is acceptable for this reporting. The written report shall include the following:

- Date and time of spill, and duration if known.
- Location of spill (street address or description of location).
- Nature of material spilled.
- Quantity of material involved.
- Receiving water body affected.
- Cause of spill.
- Observed impacts to receiving waters (e.g., discoloration, oil sheen, fishkill).

- Corrective actions that were taken to contain, minimize or cleanup the spill.
- Future corrective actions planned to be taken in order to prevent recurrence, and time schedule of implementation.
- Persons or agencies contacted.

3. Reporting of Collection System Overflows:

Overflows of sewage from the discharger's collection system, other than overflows specifically addressed elsewhere in this Order and SMP, shall be reported to the Board in accordance with the following:

a. *Overflows in excess of 1,000 gallons.*
Overflows in excess of 1,000 gallons shall be reported by telephone and written report, as follows:

i. Overflows shall be reported by telephone as soon as possible and no later than 24 hours following occurrence or discharger's knowledge of occurrence. Notification shall be made as follows:
(1) Notify the current Board staff case handler, by phone call or message, or by facsimile:
[Current Board Fax number: (510) 622-2460]; and
(2) Notify the State Office of Emergency Services at phone number: (800) 852-7550.

ii. Submit a written report of the incident in follow-up to telephone notification.

iii. The written report shall be submitted along with the regular self-monitoring report for the reporting period of the incident, unless directed otherwise by Board staff.

iv. The written report for collection system overflow shall include the following:
(1) Estimated date and time of overflow start and end.
(2) Location of overflow (street address or description of location).
(3) Estimated volume of overflow.
(4) Final disposition of overflowed wastewater (to land, storm drain, surface water body) including the name of any receiving water body affected.
(5) Cause of overflow.
(6) Observed impacts to receiving waters if any (e.g., discoloration, fish kill).
(7) Corrective actions that were taken to contain, minimize or cleanup the overflow.
(8) Future corrective actions planned to be taken to prevent recurrence and time schedule of implementation.
(9) Persons or agencies contacted.

b. *Overflows less than 1,000 gallons.*
Overflows less than 1,000 gallons shall be reported by written report, as follows:

i. The Discharger shall prepare and retain records of such overflows, with records available for review by Board staff upon request.

ii. The records for these overflows shall include the information as listed in 2.a.iv above.

iii. A summary of these overflows shall be submitted to the Board annually, as part of the Discharger's Self-Monitoring Program Annual Report.

4. Reports of Treatment Plant Process Bypass or Significant Non-Compliance.

The following requirements apply to all treatment plant bypasses and significant non-compliance occurrences, except for bypasses under the conditions contained in 40 CFR Part 122.41 (m)(4) as stated in Standard Provision A.13:

a. A report shall be made of any incident, other than wet weather discharges or bypasses addressed elsewhere in this permit and SMP, where the Discharger:
   i. experiences or intends to experience a bypass of any treatment process, or
   ii. experiences violation or threatened violation of any daily maximum effluent limit contained in this Permit or other incident of significant non-compliance, due to:
      (1) maintenance work, power failures or breakdown of waste treatment equipment, or
      (2) accidents caused by human error or negligence, or
      (3) other causes such as acts of nature.

b. Such incidents shall be reported to the Regional Board in accordance with the following:
   i. Notify Regional Board staff by telephone:
      (1) Within 24 hours of the time the Discharger becomes aware of the incident, for incidents that have occurred, and
      (2) As soon as possible in advance of incidents that have not yet occurred.
   ii. Submit a written report of the incident in follow-up to telephone notification.
      (1) The written report shall be submitted along with regular self-monitoring report for the reporting period of the incident, unless directed otherwise by Board staff.
      (2) The written report for a treatment process bypass shall include the following:
         a). Identification of treatment process bypassed;
         b). Date and time of bypass start and end;
         c). Total duration of the incident;
         d). Estimated total volume;
         e). Description of, or reference to, other report(s) describing, bypass event, cause, corrective actions taken, and any additional monitoring conducted.
   iii. The written report for violations of daily maximum effluent limits or similar significant non-compliance shall include information as described in section VII.B. of this SMP.

c. During any treatment process bypass, the Discharger shall conduct additional monitoring as described in Section V of this SMP. The results of such monitoring shall be included in the regular SMR for the reporting period of the bypass.

IV. RECORDING REQUIREMENTS – RECORDS TO BE MAINTAINED

Written reports, electronic records, strip charts, equipment calibration and maintenance records, and other records pertinent to demonstrating compliance with waste discharge requirements including self-monitoring program requirements, shall be maintained by the Discharger in a manner and at a location (e.g., wastewater treatment plant or discharger offices) such that the records are accessible to Board staff. These records shall be retained by the Discharger for a minimum of three years. The minimum period of retention shall be extended during the course of any unresolved litigation regarding the subject discharges, or when requested by the Regional Board or by the Regional Administrator of the US EPA, Region IX.

Records to be maintained shall include the following:

A. Parameter Sampling and Analyses, and Observations.

For each sample, analysis or observation conducted, records shall include the following:

1. Identity of parameter
2. Identity of sampling or observation station, consistent with the station descriptions given in this SMP.
3. Date and time of sampling or observation.
4. Method of sampling (grab, composite, other method).
5. Date and time analysis started and completed, and name of personnel or contract laboratory performing the analysis.
6. Reference or description of procedure(s) used for sample preservation and handling, and analytical method(s) used.
7. Calculations of results.
8. Analytical method detection limits and related quantitation parameters.
9. Results of analyses or observations.

B. Flow Monitoring Data.

For all required flow monitoring (e.g., influent and effluent flows), records shall include the following:

1. Total flow or volume, for each day.
2. Maximum, minimum and average daily flows for each calendar month.

C. Wastewater Treatment Process Solids.

1. For each treatment unit process which involves solid removal from the wastewater stream, records shall include the following:

    a. Total volume and/or mass quantification of solids removed from each unit (e.g., grit, skimmings, undigested sludge), for each calendar month; and
    b. Final disposition of such solids (e.g., landfill, other subsequent treatment unit).
2. For final dewatered sludge from the treatment plant as a whole, records shall include the following:

    a. Total volume and/or mass quantification of dewatered sludge, for each calendar month;
    b. Solids content of the dewatered sludge; and
    c. Final disposition of dewatered sludge (point of disposal location and disposal method).

D. Disinfection Process.

For the disinfection process, records shall be maintained documenting process operation and performance, including the following:

1. For bacteriological analyses:
    a. Date and time of each sample collected;
    b. Wastewater flow rate at the time of sample collection;
    c. Results of sample analyses (coliform count);

d. Required statistical parameters of cumulative coliform values (e.g., moving median or geometric mean for number of samples or sampling period identified in waste discharge requirements).

2. For chlorination process, at least daily average values for the following:
   a. Chlorine residual in contact basin (mg/L);
   b. Chlorine dosage (kg/day);
   c. Dechlorination chemical dosage (kg/day)

E. Treatment Process Bypasses.

A chronological log of all treatment process bypasses, other than wet weather bypasses addressed elsewhere in this permit and SMP, including the following:

1. Identification of treatment process bypassed;
2. Date(s) and times of bypass beginning and end;
3. Total bypass duration;
4. Estimated total volume;
5. Description of, or reference to other report(s) describing, bypass event, cause, corrective actions taken, and any additional monitoring conducted.

F. Collection System Overflows

A chronological log of all collection system overflows, including the following:

1. Location of overflow;
2. Date(s) and times of overflow beginning and end;
3. Total overflow duration;
4. Estimated total volume;
5. Description of, or reference to other report(s) describing, overflow event, cause, corrective actions taken, and any additional monitoring conducted.

V. CHRONIC TOXICITY MONITORING REQUIREMENTS

A. Test Species and Frequency: The Discharger shall collect 24-hour composite samples at E-001-S on consecutive days for critical life stage toxicity testing as indicated below:

Test Species	Frequency
Mysidopsis Bahia	quarterly

If the Discharger uses two more species, after at least twelve test rounds, the Discharger may request the Executive Officer to decrease the required frequency of testing, and/or to reduce the number of compliance species to one. Such a request may be made only if toxicity exceeding the TUc values specified in the effluent limitations was never observed using that test species.

B. Conditions for Accelerated Monitoring: The Discharger shall accelerate the frequency of monitoring to bimonthly (every two months), or as otherwise specified by the Executive Officer, after exceeding a three sample median value of 1 TUc or a single sample maximum of 2 TUc.

C. Methodology: Sample collection, handling and preservation shall be in accordance with U.S. EPA protocols. The test methodology used shall be in accordance with the references cited in the Permit, or as approved by the Executive Officer. A concurrent reference toxicant test shall be performed for each test.

D. Dilution Series: The Discharger shall conduct tests at 100%, 85%, 70%, 50%, and 25%. The "%" represents percent effluent as discharged.

VI. CHRONIC TOXICITY REPORTING REQUIREMENTS

A. Routine Reporting: Toxicity test results for the current reporting period shall include the following, at a minimum, for each test:

1. Sample date(s)
2. Test initiation date
3. Test species
4. End point values for each dilution (e.g., number of young, growth rate, percent survival)
5. NOEC value(s) in percent effluent
6. IC_{15}, IC_{25}, IC_{40}, and IC_{50} values (or EC_{15}, EC_{25} ... etc.) in percent effluent
7. TUc values (100/NOEC, $100/IC_{25}$, and $100/EC_{25}$)
8. Mean percent mortality ($\pm$ s.d.) after 96 hours in 100% effluent
9. NOEC and LOEC values for reference toxicant test(s)
10. IC_{50} or EC_{50} value(s) for reference toxicant test(s)
11. Available water quality measurements for each test (i.e., pH, D.O., temperature, conductivity, hardness, salinity, ammonia)

B. Compliance Summary: The results of the chronic toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table of chronic toxicity data from at least eleven of the most recent samples. The information in the table shall include the items listed above under VI.A, item numbers 1, 3, 5, 6(IC_{25} or EC_{25}), 7, and 8.

VII. MISCELLANEOUS REPORTING

A. The Discharger shall retain and submit (when required by the Executive Officer) the following information concerning the monitoring program for organic and metallic pollutants.

1. Description of sample stations, times, and procedures.

2. Description of sample containers, storage, and holding time prior to analysis.

3. Quality assurance procedures together with any test results for replicate samples, sample blanks, and any quality assurance tests, and the recovery percentages for the internal surrogate standard.

B. The Discharger shall submit in the monthly self-monitoring report the metallic and organic test results together with the detection limits (including unidentified peaks). All unidentified (non-Priority Pollutant) peaks detected in the U.S. EPA 624, 625 test methods shall be identified and semi-quantified. Hydrocarbons detected at <10 µg/L based on the nearest internal standard may

be appropriately grouped and identified together as aliphatic, aromatic and unsaturated hydrocarbons. All other hydrocarbons detected at > 10 µg/L based on the nearest internal standard shall be identified and semi-quantified.

VIII. SELECTED CONSTITUENTS MONITORING

A. Effluent monitoring shall include evaluation for all constituents listed in Table 1 by sampling and analysis of final effluent.

B. Analyses shall be conducted using the lowest commercially available and reasonably achievable detection levels. The objective is to provide quantification of constituents sufficient to allow evaluation of observed concentrations with respect to respective water quality objectives.

IX. MONITORING METHODS AND MINIMUM DETECTION LEVELS

The Discharger may use the methods listed in Table 2, above, or alternate test procedures that have been approved by the U.S. EPA Regional Administrator pursuant to 40 CFR 136.4 and 40 CFR 136.5 (revised as of May 14, 1999).

X. SELF-MONITORING PROGRAM CERTIFICATION

I, Bruce H. Wolfe, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Board Order No. R2-2003-0108.

2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the Discharger, and revisions will be ordered by the Executive Officer.

3. Is effective as of January 1, 2004.

BRUCE H. WOLFE
EXECUTIVE OFFICER

Attachment A

Chronic Toxicity – Definition of Terms and Screening Phase Requirements

ATTACHMENT A

CHRONIC TOXICITY

DEFINITION OF TERMS & SCREENING PHASE REQUIREMENTS

I. Definition of Terms

A. No observed effect level (NOEL) for compliance determination is equal to IC_{25} or EC_{25}. If the IC_{25} or EC_{25} cannot be statistically determined, the NOEL shall be equal to the NOEC derived using hypothesis testing.

B. Effective concentration (EC) is a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Karber. EC_{25} is the concentration of toxicant (in percent effluent) that causes a response in 25% of the test organisms.

C. Inhibition Concentration (IC) is a point estimate of the toxicant concentration that would cause a given percent reduction in a non-lethal, non-quantal biological measurement, such as growth. For example, an IC_{25} is the estimated concentration of toxicant that would cause a 25% reduction in average young per female or growth. IC values may be calculated using a linear interpolation method such as EPA's Bootstrap Procedure.

D. No observed effect concentration (NOEC) is the highest tested concentration of an effluent or a toxicant at which no adverse effects are observed on the aquatic test organisms at a specific time of observation. It is determined using hypothesis testing.

II. Chronic Toxicity Screening Phase Requirements

A. The Discharger shall perform screening phase monitoring:

1. Subsequent to any significant change in the nature of the effluent discharged through changes in sources or treatment, except those changes resulting from reductions in pollutant concentrations attributable to source control efforts, or

2. Prior to Permit reissuance. Screening phase monitoring data shall be included in the NPDES Permit application for reissuance. The information shall be as recent as possible, but may be based on screening phase monitoring conducted within 5 years before the permit expiration date.

B. Design of the screening phase shall, at a minimum, consist of the following elements:

4. Use of test species specified in Tables 1 and 2 (attached), and use of the protocols referenced in those tables, or as approved by the Executive Officer;

5. Two stages:

a. Stage 1 shall consist of a minimum of one battery of tests conducted concurrently. Selection of the type of test species and minimum number of tests shall be based on Table 3 (attached); and

b. Stage 2 shall consist of a minimum of two test batteries conducted at a monthly frequency using the three most sensitive species based on the Stage 1 test results and as approved by the Executive Officer.

6. Appropriate controls; and

7. Concurrent reference toxicant tests.

C. The Discharger shall submit a screening phase proposal to the Executive Officer for approval. The proposal shall address each of the elements listed above.

TABLE 1
CRITICAL LIFE STAGE TOXICITY TESTS FOR ESTUARINE WATERS

SPECIES	(Scientific name)	EFFECT	TEST DURATION	REFER-ENCE
alga	(Skeletonema costatum) (Thalassiosira pseudonana)	growth rate	4 days	1
red alga	(Champia parvula)	number of cystocarps	7-9 days	3
Giant kelp	(Macrocystis pyrifera)	percent germination; germ tube length	48 hours	2
abalone	(Haliotis rufescens)	abnormal shell development	48 hours	2
oyster mussel	(Crassostrea gigas) (Mytilus edulis)	{abnormal shell development; {percent survival	48 hours	2
Echinoderms (urchins -	Strongylocentrotus purpuratus, S. franciscanus);	percent fertilization	1 hour	2
(sand dollar -	Dendraster excentricus)			
shrimp	(Mysidopsis bahia)	percent survival; growth	7 days	3
shrimp	(holmesimysis costata)	percent survival; growth	7 days	2
topsmelt	(Atherinops affinis)	percent survival; growth	7 days	2
silversides	(Menidia beryllina)	larval growth rate; percent survival	7 days	3

Toxicity Test References:

1. American Society for Testing Materials (ASTM). 1990. Standard Guide for conducting static 96-hour toxicity tests with microalgae. Procedure E 1218-90. ASTM Philadelphia, PA.

2. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organisms. EPA/600/R-95/136. August 1995

3. Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-90/003. July 1994

TABLE 2
CRITICAL LIFE STAGE TOXICITY TESTS FOR FRESH WATERS

SPECIES	(Scientific name)	EFFECT	TEST DURATION	REFERENCE
fathead minnow	(Pimephales promelas)	survival; growth rate	7 days	4
water flea	(Ceriodaphnia dubia)	survival; number of young	7 days	4
alga	(Selenastrum capricornutum)	cell division rate	4 days	4

Toxicity Test Reference:

4. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. Third edition. EPA/600/4-91/002. July 1994

TABLE 3

TOXICITY TEST REQUIREMENTS FOR STAGE ONE SCREENING PHASE

REQUIREMENTS	RECEIVING WATER CHARACTERISTICS		
	Discharges to Coast	Discharges to San Francisco Bay ‡	
	Ocean	Marine/Estuarine	Freshwater
Taxonomic Diversity:	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish	1 plant 1 invertebrate 1 fish
Number of tests of each salinity type: Freshwater (†):	0	1 or 2	3
Marine/Estuarine:	4	3 or 4	0
Total number of tests:	4	5	3

† The fresh water species may be substituted with marine species if:
(1) The salinity of the effluent is above 1 parts per thousand (ppt) greater than 95% of the time, or
(2) The ionic strength (TDS or conductivity) of the effluent at the test concentration used to determine compliance is documented to be toxic to the test species.

‡ Marine/Estuarine refers to receiving water salinities greater than 1 ppt at least 95% of the time during a normal water year.
Fresh refers to receiving water with salinities less than 1 ppt at least 95% of the time during a normal water year.

Attachment D

Fact Sheet

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1515 CLAY STREET, SUITE 1400
OAKLAND, CA 94612
(510) 622 – 2300 Fax: (510) 622 - 2460

FACT SHEET

for

NPDES PERMIT and WASTE DISCHARGE REQUIREMENTS for

LAS GALLINAS SANITARY DISTRICT

SAN RAFAEL, MARIN COUNTY

NPDES Permit No. CA0037851

ORDER NO. R2-2003-0108

PUBLIC NOTICE:

Written Comments

- Interested persons are invited to submit written comments concerning the draft permit.
- Comments must be submitted to the Regional Board no later than 5:00 p.m. on November 17, 2003.
- Send comments to the Attention of Gina Kathuria.

Public Hearing

- The draft permit will be considered for adoption by the Regional Board at a public hearing during the Board's regular monthly meeting in the 1st floor auditorium of the Elihu Harris State Office Building, 1515 Clay Street, Oakland, CA.
- This meeting will be held on **December 3, 2003**, starting at 9:00 am.

Additional Information

- For additional information about this matter, interested persons should contact Regional Board staff member: Ms. Gina Kathuria, email: gk@rb2.swrcb.ca.gov, phone: 510-622-2378.

This Fact Sheet contains information regarding reissuance of waste discharge requirements and the National Pollutant Discharge Elimination System (NPDES) permit for the Las Gallinas Valley Sanitary District Sewage Treatment Plant applicable to discharges of municipal wastewater. The Fact Sheet describes the factual and legal bases for provisions of the permit, as well as the methodology used by the Regional Board in establishing proposed permit provisions; and it provides documentation in support of the rationale and assumptions used in deriving the effluent limitations.

I. INTRODUCTION

1. Discharge Description

The Las Gallinas Sanitary District (the Discharger) submitted a Report of Waste Discharge and applied to the Regional Board for reissuance of waste discharge requirements and its NPDES permit to discharge municipal wastewater to waters of the State and the United States on April 23, 2003.

The Discharger owns and operates a wastewater treatment plant (WWTP), located at 300 Smith Ranch Road, San Rafael, Marin County, California. The WWTP provides secondary treatment of wastewater from primarily domestic and commercial sources located in the northern portion of the City of San Rafael. The WWTP has a dry weather flow design capacity of 2.92 million gallons per day (MGD) and is currently treating an average wastewater flow of 2.8 MGD. The average dry weather flow is 2.2 MGD. High rates of inflow and infiltration have caused wet weather influent wastewater flows exceeding 16 MGD.

2. Description of Treatment Processes

Treatment components include screening, aerated grit chambers, primary sedimentation, trickling filters and intermediate clarifiers, fixed-film reactor (nitrification), secondary clarification, deep-bed filters, disinfection, and dechlorination. The WWTP provides secondary treatment for all flows up to 5.8 MGD; primary treatment plus deep bed filtration and disinfection for flows between 5.8 and 12.5 MGD; grit removal, deep bed filtration, and disinfection for flows between 12.5 and 20 MGD; and grit removal and disinfection only for flows in excess of 20 MGD. In the previous permit, the WWTP was described as providing "advanced secondary" treatment to flows up to 5.8 mgd. An inspection of the WWTP indicated that the treatment processes are equivalent to secondary treatment level. Therefore, this Order modifies the previous "advanced secondary" to "secondary" wherever applicable.

3. Shallow Water Discharge Prohibition Exception and Reclamation

The WWTP discharges, directly or through storage ponds, to Miller Creek, a tidally influenced perennial creek, approximately one mile from San Pablo Bay. The outfalls (E-001 and E-002) to Miller Creek are designated as shallow water discharges. The Discharger has previously been granted an exception to the Regional Board's prohibition on discharges of wastewater that do not receive an initial dilution of 10 to 1. This exception is based on the Discharger's implementation of an approved reclamation program. Under the previous NPDES Permit, contained in Board Order No. 98-112 (the previous permit), discharges to Miller Creek are allowed only between November 1 and May 31.

During the WWTP's non-discharging period, treated wastewater is reclaimed for irrigation of 200 acres of pasture by the Discharger and for off-site landscape irrigation by the Marin Municipal Water District (MMWD). MMWD provides further treatment of WWTP effluent before distributing it for reclamation use. Effluent flow that cannot be used for reclamation purposes, is retained by the Discharger in storage ponds and allowed to evaporate. Waste discharge requirements pertaining to the reclamation uses of wastewater are addressed separately from discharges to Miller Creek by Regional Board Order Nos. 92-064 (the Discharger's irrigation system) and 89-127 (MMWD's system).

4. Solids Disposal

Solids removed during wastewater treatment are gravity thickened and anaerobically digested, and then pumped to onsite storage ponds with a total capacity of 3.2 million gallons. Solids from MMWD's water reclamation facility are returned to the treatment process or pumped directly to the on-site storage ponds. Solids (approximately 185 metric tons on a dry basis) are ultimately disposed of by subsurface injection at the Discharger's nine-acre, dedicated land disposal site. Solids from

grit removal processes and skimmings from clarifiers are hauled to the Redwood Sanitary Landfill for disposal.

II. DESCRIPTION OF EFFLUENT

The table below summarizes effluent monitoring data during the periods of November 1 through May 31 annually from 1998 through 2002. Average values represent the average of actual detected values only.

Table A. Summary of Effluent Monitoring Data

Parameter	Average	Daily Maximum
BOD_5 (mg/L)*	10	21
TSS (mg/L)*	14	54
Total Settleable Solids (ml/l-hr)*	0.054	3.5
Residual Chlorine*	1.2[1] (min)	2.6
pH (standard units)*	6.94	8.1
Ammonia (as N) (mg/L)*	2.55	26
Oil and Grease*	7.25	9.0
Total Coliform (mpn/100 ml)*	8[2]	16000
Arsenic (µg/L)	0.94	1.0
Cadmium (ug/L)*	0.27	0.6
Total Chromium (µg/L)*	1.22	2.2
Copper (µg/L)*	10.3	25
Lead (µg/L)*	0.64	2.0
Mercury (µg/L)*	0.03	0.077
Nickel (µg/L)*	4.98	8.2
Selenium (µg/L)	1.0	1.5
Silver (ug/L)	0.69	1.2
Zinc (µg/L)*	81	110
Cyanide (µg/L)*	5.0	10
Bromoform [3]	2.0	2.0
Carbon Tetrachloride [3]	1.0	1.0
Chlorodibromomethane (µg/L)	7.78	21
Chloroform (µg/L)	8.97	19
Dichlorobromomethane (µg/L)	8.4	28
Methyl Bromide [3]	0.9	0.9
Methyl Chloride	1.4	2.3
Bis(2-ethylhexyl)phthalate[3]	16	16
Tributyltin (µg/L) [3]	0.006	0.006

Footnotes for Table A:

* Current permit contains effluent concentration limits for these constituents.

[1] This is based on only 6 detectable results. All other daily monitoring results for the time period were 0.0 mg/L.

[2] Median value

[3] Only one detected value, therefore the average value is also the maximum value.

III. CHARACTERIZING RECEIVING WATER

1. Beneficial Uses of the Receiving Water

The beneficial uses of Miller Creek and San Pablo Bay, as identified in the Regional Board's 1995 *Water Quality Control Plan San Francisco Bay Region* (the Basin Plan), and recognized as known uses of the receiving waters in the vicinity of the discharge are as follows:

- Cold Freshwater Habitat (Miller Creek only)
- Commercial and Sport Fishing (San Pablo Bay only)
- Estuarine Habitat (San Pablo Bay only)
- Industrial Service Supply (San Pablo Bay only)
- Fish Migration
- Navigation (San Pablo Bay only)
- Preservation of Rare and Endangered Species
- Water Contact Recreation
- Non-contact Recreation
- Shell Fish Harvesting (San Pablo Bay only)
- Fish Spawning
- Warm Freshwater Habitat (Miller Creek only)
- Wildlife Habitat

2. Receiving Water Salinity

Determination of the need for water-quality based effluent limitations (WQBELs) and the establishment of appropriate limitations thereafter require statistical comparison of effluent and ambient background data to water quality objectives (WQOs) established in the Basin Plan, and water quality criteria (WQC) established in the National Toxics Rule (the NTR, codified at 40 CFR 131.36) and the California Toxics Rule (the CTR, codified at 40 CFR 131.38). These sources establish specific aquatic life criteria and objectives for freshwater, saltwater, and/or estuarine waters.

The Basin Plan defines receiving waters with salinities below 5 parts per thousand (ppt) at least 75 percent of the time as freshwater, and receiving waters with salinities greater than 5 ppt at least 75 percent of the year as saltwater. For receiving waters with salinities between these concentrations, or tidally influenced freshwater that supports estuarine beneficial uses, the applicable criteria shall be the lower of the saltwater or freshwater aquatic life criteria.

The CTR define receiving waters in which the salinity is equal to or less than 1 ppt at least 95 percent of the time as freshwater, and receiving waters where the salinity is equal to or greater than 10 ppt at least 95 percent of the time as saltwater (except for selenium in the San Francisco Bay estuary). For waters in between these values (estuarine waters), the more stringent of the freshwater and saltwater criteria are applied.

The receiving waters for the subject discharge are the waters of Miller Creek and San Pablo Bay. Monitoring data collected by the Discharger from 1993 through 2002 were used to determine the salinity of the receiving water. Based on 1993 to 2002 salinity data, Miller Creek is estuarine in character pursuant to the CTR and Basin Plan salinity criteria. In addition, San Pablo Bay is

specifically identified as estuarine in the Basin Plan. The applicable WQOs/WQC are, therefore, the lower of the individual marine and fresh WQOs/WQC apply.

3. Receiving Water Hardness

The toxicity of some metals is hardness-dependent; therefore, determination of the need for WQBELs and establishment of such limitations require adjustment of applicable WQOs/WQC to account for the receiving water hardness. The Board has used a hardness value of 145 milligrams per liter (mg/L) for Miller Creek based on the Discharger's analysis of background water samples from the creek. The 100 raw data points were censored to eliminate data obtained when the hardness values were above 400 mg/L or when the receiving water salinity was above 1.0 ppt. The adjusted geometric mean (AGM, a value which 30% of the data points fall below the AGM) hardness value for Miller Creek was calculated to be 145 mg/L based on this censored data set of 69 data points.

The following lists the steps to calculate an AGM:

(1). Calculate the logarithms of each hardness value.
(2). Calculate the arithmetic mean of the logarithms.
(3). Calculate the standard deviation (s) of the logarithms.
(4). Calculate the standard error (SE) of the arithmetic mean:
$SE = s/\sqrt{n}$
(5). Calculate A = arithmetic mean - $t_{0.7} \times SE$
where $t_{0.7}$ is the value of Student's *t* statistics for a one-sided probability of 0.7 with *n-1* degrees of freedom, *n*-sample size. When the sample size is large, the Student t statistics can be approximate by the normal distribution z-statistics, which is 0.524.
(6). Take the antilogarithm of A, antilog A is the Adjusted Geometric Mean (AGM).

4. Receiving Water Ambient Background Data

Ambient background values are used in the RPA. The WWTP discharges into Miller Creek, which is a tributary to San Pablo Bay. During the wet season, the flow in Miller Creek includes both fresh water inflows from upstream sources and tidal flows from the Bay. At other times, especially during the dry season, Miller Creek is tidally influenced and largely comprised of inflow from the Bay. Data from the San Pablo Bay RMP station BD20 (the San Pablo Bay RMP station) are the most representative currently available background data. RP was determined using ambient background data from 1993 through 2000 from the San Pablo Bay RMP station.

However, a data gap remains as to the ambient background conditions for the discharge into Miller Creek. San Pablo Bay station RMP data were used for this permit reissuance because this is the best available information representing ambient background condition for this discharge. The Miller Creek outfall is located one mile from the mouth of San Pablo Bay; the RMP station in San Pablo Bay is located in the center of San Pablo Bay. Therefore, there is significant distance from the discharge outfall to the RMP Station. For future permit reissuance, the Board may require sampling in Miller Creek to characterize ambient background conditions if data are needed.

IV. GENERAL RATIONALE AND REGULATORY BASES

Provisions of the Order and methods used by the Regional Board to establish those provisions are requirements of or are derived from many sources, including the following:

- Sections 301 through 305, and 307 of the Federal *Water Pollution Control Act*, and amendments thereto, as applicable.

- The Regional Board's June 21, 1995 *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan).

- The State Board's March 2, 2000 The *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (the State Implementation Plan or SIP), as approved by the Office of Administrative Law and the U.S. EPA.

- U.S. EPA's May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule – the CTR, as codified at 40 CFR 131.38).

- U.S. EPA's National Toxics Rule (the NTR, as codified at 40 CFR 131.36).

- U.S. EPA's *Quality Criteria for Water* [EPA 440/5-86-001, 1986] and subsequent amendments, (the U.S. EPA Gold Book).

- Applicable U.S. EPA regulations from 40 CFR Parts 122 through 135.

- 40 CFR Part 131.36(b) and amended [Federal Register Volume 60, Number 86, 4 May 1995, pages 22229-22237].

- U.S. EPA's December 10, 1998 *National Recommended Water Quality Criteria* compilation [Federal Register Vol. 63, No. 237, pp. 68354-68364].

- U.S. EPA's December 27, 2002 *Revision of National Recommended Water Quality Criteria* compilation [Federal Register Vol. 67, No. 249, pp. 79091-79095].

- Regional Board staff's Best Professional Judgment (BPJ), which has taken into consideration:

    - the Basin Plan

    - U.S. EPA Region 9 February 1994 Guidance For NPDES Permit Issuance

    - U.S. EPA's March 1991 Technical Support Document for Water Quality-Based Toxics Control (the TSD)

    - U.S. EPA's October 1, 1993 Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria

    - U.S. EPA's July 1994 Whole Effluent Toxicity (WET) Control Policy

- U.S. EPA's August 14, 1995 National Policy Regarding Whole Effluent Toxicity Enforcement

- U.S. EPA's April 10, 1996 Clarifications Regarding Flexibility in 40 CFR Part 136 Whole Effluent Toxicity (WET) Test Methods

- U.S. EPA Regions 9 & 10's May 31, 1996 Guidance for Implementing Whole Effluent Toxicity Programs Final;

- U.S. EPA's February 19, 1997 Draft Whole Effluent Toxicity (WET) Implementation Strategy.

V. SPECIFIC RATIONALE

Several specific factors affecting the development of limitations and requirements in the proposed Order are discussed as follows:

A. Basis for Effluent Limitations

1. Recent Plant Performance

Section 402(o) of the Federal Clean Water Act and 40 CFR § 122.44(l) require that WQBELs in re-issued permits be at least as stringent as those in the previous permit. The SIP specifies that interim effluent limitations, if required, must be based on current treatment facility performance or on existing permit limitations, whichever is more stringent (unless anti-backsliding requirements are met). In determining what constitutes "recent plant performance," BPJ, as defined above, was used. Effluent monitoring data collected for the discharge seasons from November 1998 through December 2002 are considered representative of recent plant performance.

2. Impaired Water Bodies in 303(d) List

On June 6, 2003, the U.S. EPA approved a revised list of impaired water bodies prepared by the State (the 2003 303(d) list) pursuant to provisions of Clean Water Act Section 303(d) requiring identification of specific water bodies where it is expected that water quality standards will not be met after implementation of technology-based effluent limitations on point sources. The pollutants impairing San Pablo Bay are chlordane, DDT, diazinon, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, nickel, PCBs, dioxin-like PCBs, and selenium. Miller Creek is listed as impaired by diazinon.

The SIP requires final effluent limitations for all 303(d)-listed pollutants to be based on total maximum daily loads (TMDLs) and associated wasteload allocations (WLAs). The SIP and U.S. EPA regulations also require that final concentration-based WQBELs be included for all pollutants having reasonable potential to cause or contribute to an exceedence of applicable water quality standards (having reasonable potential). The SIP requires that where the Discharger has demonstrated infeasibility to meet the final WQBELs, interim performance-based limitations (IPBLs) or existing permit limitations (whichever is more stringent) be established in the permit, together with a compliance schedule in effect until final effluent limitations are adopted. The SIP also requires the inclusion of appropriate provisions for waste minimization and source control where interim limitations are established.

3. Basis for Prohibitions

a). Prohibition A.1 (Discharge to Miller Creek is prohibited, except as defined by the permit). The Basin Plan prohibits the discharge of wastewater to receiving waters that do not provide an initial minimum dilution of at least 10 to 1, or into any non-tidal water, dead end slough, similar confined waters, or any immediate tributaries thereof. The Basin Plan also allows exceptions to this prohibition in circumstances where discharges are part of a reclamation project or have demonstrated net environmental benefit. Order No. 98-112 continued the exception previously granted to the Discharger with an allowable discharge period of November through May. The exception is retained in this Order and the allowable discharge period is unchanged from the previous Order. The general prohibition of discharging at a location or in a manner different from that described by the Order is retained from the previous Order; and, as described in State Water Resources Control Board Water Quality Order 2002-0012, this prohibition applies to constituents that are not anticipated in the discharge and have not been disclosed by the Discharger.

b). Prohibition A.2 (Bypass or overflow is prohibited). This prohibition is retained from the previous Order and is based on the U.S. EPA prohibition and/or restrictions regarding bypass and overflow contained in 40 CFR 122.41(m).

c). Prohibition A.3 (Flow limit). The limitation restricting the average dry weather flow is retained from the previous permit and limits dry weather flow to the engineering design treatment capacity of the WWTP.

d). Prohibition A.4 Discharge to Miller Creek from June through October prohibited, except as approved by the Executive Officer). This prohibition is unchanged from the previous Order. As discussed in Prohibition A.1, the exception to the shallow water discharge prohibition is based on the Discharger's implementation of an approved reclamation program and, therefore, no discharge is allowed during the dry weather season.

e). Prohibition A.5 (No unauthorized discharge). This prohibition is based on the Basin Plan and the Clean Water Act, which prohibit unauthorized/unpermitted discharges.

4. Basis for Effluent Limitations

a) **Effluent Limitation B.1 (Conventional and non-conventional pollutants for May).**

Constituent	Unit	Monthly Average	Weekly Average	Daily Maximum
B.1.a. Biochemical Oxygen Demand	mg/L	20	25	30
(BOD_5, 20°C) or				
Carbonaceous BOD *	mg/l	15	18	20
B.1.b. Total Suspended Solids	mg/L	15	18	20
B.1.c. Oil and Grease	mg/L	5		15
B.1.d. Total Ammonia as N	mg/L	6.0		
B.1.e. Settleable Solids	mg/L-hr	0.1		0.2

* Although the Discharger has been monitoring and reporting BOD_5, they wish to keep this limit in the Order to have flexibility of switching to CBOD in the future.

Effluent limitations B.1.a through B.1.e are technology-based limits and are from previous permit. They are intended to ensure adequate and reliable secondary level wastewater treatment. The limitations for dry weather months reflect full treatment of all influent flows at the WWTP and are more stringent than the requirements for secondary plants as described in the Basin Plan and by the U.S. EPA at 40 CFR 133.102. Compliance has generally been demonstrated by existing plant performance. The Discharger is taking steps to improve the reliability of WWTP performance.

b) **Effluent Limitation B.2 (Conventional and non-conventional pollutants during wet weather months).**

Constituent	Unit	Monthly Average	Weekly Average	Daily Maximum
B.2.a. Biochemical Oxygen Demand	mg/L	30	45	
(BOD_5, 20°C) or				
Carbonaceous BOD *	mg/l	25	38	50
B.2.b. Total Suspended Solids	mg/L	30	45	
B.2.c. Oil and Grease	mg/L	10		20
B.2.d. Settleable Solids	mg/L-hr	0.1		0.2

* Although the Discharger has been monitoring and reporting BOD_5, they wish to keep this limit in the Order to have flexibility of switching to CBOD in the future.

Effluent Limitations B.2.a through B.2.d are technology-based and are from previous permit. They are intended to ensure adequate and reliable secondary level wastewater treatment. The limitations for wet weather flows meet the requirements for secondary plants as described in the Basin Plan (Table 4-2) and by the U.S. EPA at 40 CFR 133.102, but represent less stringent limits than those effective during dry weather periods. High flows during the wet weather months reduce the Discharger's ability to provide full treatment to all influent flows. Compliance has been demonstrated by existing plant performance.

c) **Effluent Limitation B.3 (pH, minimum 6.5, maximum 8.5):**

This effluent limitation is a technology-based limit and is unchanged from the previous permit. The limitation is based on the Basin Plan (Chapter 4, Table 4-2), which is derived from federal requirements at 40 CFR 133.102. This is an existing permit effluent limitation and compliance has been demonstrated by existing plant performance.

d) **Effluent Limitation B.4 (Chlorine Residual).**

The requirement that discharges to Miller Creek not containing chlorine residual is retained from the previous permit. Compliance has generally been demonstrated by existing plant performance and the Discharger is taking measures to increase the capacity and performance of its chlorination and dechlorination equipment.

e) **Effluent Limitation B.5 (BOD_5 and TSS monthly average 85 percent removal).**

The 85 percent removal efficiency requirements for BOD_5/CBOD and suspended solids are technology-based, standard secondary treatment requirements, and are retained from the previous

permit. These requirements are based on Basin Plan requirements (Table 4-2, pg. 4–69), which are derived from U.S. EPA requirements at 40 CFR 133.102. Compliance has been demonstrated by existing plant performance for ordinary flows.

f) **Effluent Limitation B.6 (Enterococcus).**

The previous Order included total coliform limitations. The U.S. EPA's May 2002 draft implementation guidance for bacteriological water quality criteria recommended either enterococcus or *E. coli*, or both together, as superior to total or fecal coliform as bacteriological indicators for human health pathogenic risk. This recommendation was based on multiple sources of coliform bacteria, including humans, and research results showing that many of these forms are unrelated to human pathogens or risk potential. A growing number of studies (including an 1995 epidemiological study conducted by the Santa Monica Bay Restoration Project and other studies referenced in the May 2002 U.S. EPA Guidance) have indicated that enterococcus and/or *E. coli* counts are more significantly correlated with human health problems than coliform counts. Thus, enterococcus bacteria are recognized by U.S. EPA and others as an accurate indicator of human health risk potential from water contact.

The Board has included the following enterococcus limitations in this Order:

1. 30-day geometric mean of less than 35 enterococcus colonies per 100mL; and,
2. No single effluent sample exceeding 276 colonies per 100mL, as verified by a follow-up sample taken within 24 hours.

Application of these limitations is contingent on the Discharger completing a confirmation study as required by Provision E.11. The study must show: (1) that the enterococcus limitations are protective of all of the designated uses of the receiving waters, and (2) the "light contact" use designation is appropriate for the receiving waters. Compliance with the enterococcus limitations will reduce the required level of chlorination at the plant.

g) **Effluent Limitation B.7 (Whole Effluent Acute Toxicity).**

The Basin Plan specifies a narrative objective for toxicity, requiring that all waters shall be maintained free of toxic substances in concentrations that are lethal to or produce other detrimental response on aquatic organisms. Detrimental response includes but is not limited to decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alternations in population, community ecology, or receiving water biota. These effluent toxicity limitations are necessary to ensure that this objective is protected. The whole effluent acute toxicity limitations for an eleven-sample median and an eleven-sample 90th percentile value are consistent with the previous Order and are based on the Basin Plan (Table 4-4, pg. 4–70). The limitations remain unchanged in this Order. The previous Order required testing of two species (i.e., fathead minnow and stickleback). Starting in 2002, the Discharger was permitted to use the more sensitive species (fathead minnow) for testing. During 2000-2002, the eleven-sample median survival of both species was between 95 and 100 percent. The 90th percentile survival was between 80 and 100 percent.

h) **Effluent Limitation B.8 (Chronic Toxicity).**

The chronic toxicity objective/limitation is based on the Basin Plan's narrative toxicity objective on page 3-4. The chronic toxicity requirements are unchanged from the previous Order. During

1999 through early 2003, chronic toxicity was consistently observed in the effluent. Provision E.8 of this Order requires the Discharger to prepare and submit to the Board within 60 days of the effective date of this Order an evaluation of the possible sources of the toxicity through the TIE/TRE processes as well as plan to address these sources.

i) **Effluent Limitation B.9 (Toxic Substances).**

1. **Reasonable Potential Analysis (RPA)**

At 40 CFR 122.44(d)(1)(i), the U.S. EPA requires that permits include WQBELs for all pollutants "which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard" (have reasonable potential). Thus, assessing whether a pollutant has reasonable potential (reasonable potential analysis – RPA) is the fundamental step in determining whether WQBELs are required. The following sections describe the RPA methodology and the RPA results for the pollutants identified in the Basin Plan and the CTR.

i) *WQOs and WQC*: The RPA uses Basin Plan WQOs, including narrative toxicity objectives in the Basin Plan, and applicable WQC in the CTR/NTR. The Basin Plan WQOs and NTR/CTR WQC are shown in Attachment 1 of this Fact Sheet.

ii) *Methodology*: The RPA uses the methods and procedures prescribed in Section 1.3 of the SIP. Board staff has analyzed the effluent and background data and the nature of facility operations to determine if the discharge shows reasonable potential with respect to the governing WQOs or WQC. Attachment 1 of this Fact Sheet shows the step-wise process described in Section 1.3 of the SIP.

iii) *Effluent and background data*: The RPA was based on monthly effluent monitoring data from the discharge season (November through May) for the period from November 1998 through December 2002 (the effluent data, see Attachment 4 for the data). During the wet season, the flow in Miller Creek reflects both fresh water inflows from upstream sources and tidal flows from the Bay. At other times, especially during the dry season, Miller Creek is tidally influenced and largely comprised of inflow from the bay. Ambient background data from San Pablo Bay Regional Monitoring Program (RMP) Station BD20 collected during the period 1993-2000 are the most representative currently available ambient background data. Therefore, this data set has been used as for the ambient background values in the RPA.

iv) *RPA determination*: The RPA results are shown below in Table B and Attachment 1 of this Fact Sheet. The pollutants having reasonable potential are chromium (VI), copper, lead, mercury, nickel, cyanide, bis(2-ethylhexyl)phthalate, 4,4'-DDE, dieldrin, heptachlor epoxide, and 2,3,7,8-TCDD TEQ.

Table B. Summary of Reasonable Potential Results

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQOs/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
1	Antimony	NA	4300	NA	Ud

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQOs/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
2	Arsenic	**1**	36	**3.92**	N
4	Cadmium	**0.6**	1.52	**0.1414**	N
5a	Chromium (III)	NA	281	NA	Ud
5b	Chromium (VI)	**2.2**	11	**40.7**	Y
6	Copper	**25**	5.54	**14.3**	**Y**
7	Lead	**2.0**	5.11	**6.46**	**Y**
8	Mercury	**0.077**	0.025	**0.0881**	**Y**
9	Nickel	**8.2**	12.55	**30**	**Y**
10	Selenium	**1.5**	5.0	**0.33**	N
11	Silver	**1.2**	2.3	**0.059**	N
12	Thallium	NA	6.3	NA	Ud
13	Zinc	**110**	124.7	**35**	N
14	Cyanide	**10**	1.0	NA	**Y**
16	2,3,7,8-TCDD (Dioxin)	2.69E-06	1.4E-08	NA	**Y**[3]
17	Acrolein	5	780	NA	N
18	Acrylonitrile	2	0.66	NA	N
19	Benzene	0.5	71	NA	N
20	Bromoform	**2.0**	360	NA	N
21	Carbon Tetrachloride	**1.0**	4.4	NA	N
22	Chlorobenzene	0.5	21000	NA	N
23	Chlorodibromomethane	**21**	34	NA	N
24	Chloroethane	0.5	NA	NA	Uo
25	2-Chloroethylvinyl Ether	0.5	NA	NA	Uo
26	Chloroform	**19**	NA	NA	Uo
27	Dichlorobromomethane	**28**	46	NA	N
28	1,1-Dichloroethane	0.5	NA	NA	Uo
29	1,2-Dichloroethane	0.5	99	NA	N
30	1,1-Dichloroethylene	0.5	3.2	NA	N
31	1,2-Dichloropropane	0.5	39	NA	N
32	1,3-Dichloropropylene	0.5	1700	NA	N
33	Ethylbenzene	0.5	29000	NA	N
34	Methyl Bromide	**0.9**	4000	NA	N
35	Methyl Chloride	**2.3**	NA	NA	Uo
36	Methylene Chloride	2	1600	NA	N
37	1,1,2,2-Tetrachloroethane	0.5	11	NA	N
38	Tetrachloroethylene	0.5	8.85	NA	N
39	Toluene	0.5	200000	NA	N
40	1,2-Trans-Dichloroethylene	0.5	140000	NA	N
41	1,1,1-Trichloroethane	0.5	NA	NA	Uo
42	1,1,2-Trichloroethane	0.5	42	NA	N
43	Trichloroethylene	0.5	81	NA	N
44	Vinyl Chloride	0.5	525	NA	N
45	2-Chlorophenol	0.5	400	NA	N
46	2,4-Dichlorophenol	0.5	790	NA	N
47	2,4-Dimethylphenol	0.5	2300	NA	N
48	2-Methyl-4,6-Dinitrophenol	0.5	765	NA	N

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQOs/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
49	2,4-Dinitrophenol	0.5	14000	NA	N
50	2-Nitrophenol	0.5	NA	NA	Uo
51	4-Nitrophenol	0.5	NA	NA	Uo
52	3-Methyl-4-Chlorophenol	0.5	NA	NA	Uo
53	Pentachlorophenol	0.5	7.9	NA	N
54	Phenol	1.0	4600000	NA	N
55	2,4,6-Trichlorophenol	5	6.5	NA	N
56	Acenaphthene	0.2	2700	**0.0093**	N
57	Acenaphthylene	0.2	NA	**0.0007**	Uo
58	Anthracene	0.3	110000	**0.01**	N
59	Benzidine	0.3	0.00054	NA	N
60	Benzo(a)Anthracene	0.3	0.049	**0.0064**	N
61	Benzo(a)Pyrene	0.3	0.049	**0.0094**	N
62	Benzo(b)Fluoranthene	0.3	0.049	**0.018**	N
63	Benzo(ghi)Perylene	0.1	NA	**0.009**	Uo
64	Benzo(k)Fluoranthene	0.3	0.049	**0.0051**	N
65	Bis(2-Chloroethoxy)Methane	5	NA	NA	Uo
66	Bis(2-Chloroethyl)Ether	1	1.4	NA	N
67	Bis(2-Chloroisopropyl)Ether	2	170000	NA	N
68	Bis(2-Ethylhexyl)Phthalate	**16**	5.9	NA	**Y**
69	4-Bromophenyl Phenyl Ether	5	NA	NA	Uo
70	Butylbenzyl Phthalate	5	5200	NA	N
71	2-Chloronaphthalene	5	4300	NA	N
72	4-Chlorophenyl Phenyl Ether	5	NA	NA	Uo
73	Chrysene	0.3	0.049	**0.0083**	N
74	Dibenzo(a,h)Anthracene	0.1	0.049	**0.0026**	N
75	1,2 Dichlorobenzene	0.5	17000	NA	N
76	1,3 Dichlorobenzene	0.5	2600	NA	N
77	1,4 Dichlorobenzene	0.5	2600	NA	N
78	3,3-Dichlorobenzidine	5	0.077	NA	N
79	Diethyl Phthalate	2	120000	NA	N
80	Dimethyl Phthalate	2	2900000	NA	N
81	Di-n-Butyl Phthalate	5	12000	NA	N
82	2,4-Dinitrotoluene	5	9.1	NA	N
83	2,6-Dinitrotoluene	5	NA	NA	Uo
84	Di-n-Octyl Phthalate	5	NA	NA	Uo
85	1,2-Diphenylhydrazine	1	0.54	NA	N
86	Fluoranthene	0.05	370	**0.022**	N
87	Fluorene	0.05	14000	**0.0021**	N
88	Hexachlorobenzene	1	0.00077	**0.000073**	N
89	Hexachlorobutadiene	1	50	NA	N
90	Hexachlorocyclopentadiene	5	17000	NA	N
91	Hexachloroethane	1	8.9	NA	N
92	Indeno(1,2,3-cd) Pyrene	0.05	0.049	**0.012**	N
93	Isophorone	1	600	NA	N

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL[1] (µg/L)	Governing WQOs/WQC (µg/L)	Maximum Background (µg/L)	RPA Results[2]
94	Naphthalene	0.2	NA	**0.0016**	Uo
95	Nitrobenzene	1	1900	NA	N
96	N-Nitrosodimethylamine	5	8.1	NA	N
97	N-Nitrosodi-n-Propylamine	5	1.4	NA	N
98	N-Nitrosodiphenylamine	1	16	NA	N
99	Phenanthrene	0.05	NA	**0.0078**	Uo
100	Pyrene	0.05	11000	**0.03**	N
101	1,2,4-Trichlorobenzene	5	NA	NA	Uo
102	Aldrin	0.005	0.00014	NA	**N**
103	alpha-BHC	0.01	0.013	NA	N
104	beta-BHC	0.005	0.046	NA	N
105	gamma-BHC	0.01	0.063	NA	N
106	delta-BHC	0.005	NA	NA	Uo
107	Chlordane	0.01	0.00059	**0.000344**	N
108	4,4'-DDT	0.01	0.00059	**0.000416**	N
109	4,4'-DDE	0.01	0.00059	**0.001159**	**Y**
110	4,4'-DDD	0.01	0.00084	**0.00067**	N
111	Dieldrin	0.01	0.00014	**0.000237**	**Y**
112	alpha-Endosulfan	0.01	0.0087	**0.000017**	N
113	beta-Endosulfan	0.01	0.0087	**0.000059**	N
114	Endosulfan Sulfate	0.01	240	**0.0001433**	N
115	Endrin	0.01	0.0023	**0.000073**	N
116	Endrin Aldehyde	0.01	0.81	NA	N
117	Heptachlor	0.01	0.00021	**0.000017**	N
118	Heptachlor Epoxide	0.01	0.00011	**0.000121**	Y
119-125	PCBs	0.1	0.00017	NA	N
126	Toxaphene	0.1	0.0002	NA	N
	Tributyltin	**0.006**	0.01	NA	N

NA = Not Available

Footnotes for Table B:

1 Maximum Effluent Concentration (MEC) in bold is the actual detected MEC, otherwise the MEC shown is the minimum analytical detection level.

2 RP =Yes, if either MEC or Background > WQOs/WQC.
RP = No, if both MEC and background < WQOs/WQC, or all effluent concentrations non-detect and background <WQOs/WQC or no background data available.
RP = Uo (undetermined when no objective is established)
RP = Ud (underdetermined where no effluent data available)

3. RP =Yes, based on the third trigger. Although additional, reliable ambient and effluent data are required, the *San Francisco Bay Ambient Water Monitoring Interim Report* provides monitoring results from sampling events in 2002 and 2003 for three Bay Area RMP stations. While these "interim" data have not been used to evaluate reasonable potential using trigger 2, they show elevated dioxin levels at Yerba Buena Island (no data collected at the San Pablo Bay station). The Board has considered these data along with the listing on the 303(d) list to find reasonable potential for dioxin based on the third trigger.

v) *RPA for Individual and Total PAHs.* The RPA above was conducted on individual PAHs as required by the SIP and CTR using CTR criteria for the protection of human health. The Basin Plan has a saltwater objective for total PAHs of 15 µg/L as 24-hour average for the protection of aquatic life. A separate RPA was therefore performed on the total PAHs. However, effluent monitoring data for all 16 PAHs are non-detect. Table C below lists the RPA conducted with the currently available data.

Table C. Results for Individual PAH and Total PAHs

CTR #	Constituent	WQO [1] (µg/L)	MEC (µg/L)	Maximum Ambient Background Conc. (µg/L)	RP [3]
56	Acenaphthene	2,700	<0.2	0.0093	No
57	Acenaphthylene	No Criteria	<0.2	0.0007	No
58	Anthracene	110,000	<0.3	0.01	No
60	Benzo(a)Anthracene	0.049	<0.3	0.0064	No
61	Benzo(a)Pyrene	0.049	<0.3	0.0094	No
62	Benzo(b)Fluoranthene	0.049	<0.3	0.018	No
63	Benzo(ghi)Perylene	No Criteria	<0.1	0.009	No
64	Benzo(k)Fluoranthene	0.049	<0.3	0.0051	No
73	Chrysene	0.049	<0.3	0.0083	No
74	Dibenzo(a,h)Anthracene	0.049	<0.1	0.0026	No
86	Fluoranthene	370	<0.05	0.022	No
87	Fluorene	14,000	<0.05	0.00073	No
92	Indeno(1,2,3-cd) Pyrene	0.049	<0.05	0.012	No
94	Naphthalene	No Criteria	<0.2	0.0016	No
99	Phenanthrene	No Criteria	<0.05	0.078	No
100	Pyrene	11,000	<0.05	0.03	No
	Total PAH	15	0 [2]	0.22	No

Footnotes for Table C:

[1] WQOs for individual PAHs are based on the numeric WQO for CTR protection of human health through consumption of organisms only; WQO for total PAH is from Basin Plan for the protection of aquatic life.
[2] When all data are non-detect, 0 is used to replace the MEC for calculating the MEC of total PAHs.
[3] "No" since effluent data are all non-detect, minimum detection limits <WQOs, and background <WQOs.

vi) *Conversion of existing Basin Plan objectives using CTR Conversion Factors and Site-Specific Translators.*

The CTR and the Basin Plan establish aquatic life- and human health-based water quality criteria. The water quality criteria are typical values based on default site conditions and assumptions. However, site-specific conditions such as water temperature, pH, hardness, concentrations of metal binding sites, particulates organic carbon, dissolved organic carbon, and concentrations of other chemicals can greatly impact the chemical toxicity.

The purpose of a translator is to adjust these default assumptions for varying site-specific conditions to prevent exceedingly stringent or under protective water quality objectives.

The Basin Plan WQOs are expressed in total. The CTR conversion factors are used to convert the total Basin Plan WQOs to dissolved values. The CTR conversion factors are derived under the same laboratory conditions under which the WQOs were developed. Therefore, it is appropriate to use the CTR conversion factors to convert the Basin Plan WQOs. Site-specific translators were used to convert the dissolved Basin Plan WQOs back to total values.

The Discharger has performed a site-specific translator study and developed translators for nickel. Applying the above discussed procedures, the adjusted WQOs are derived. The following table summarizes the applicable CTR/Basin criteria, CTR conversion factors, site-specific translators, and translated WQOs.

Pollutant	Applicable most stringent WQOs		CTR Conversion Factors		Applicable WQOs basis	Converted dissolved WQOs		Site-Specific translators		Converted Site-Specific WQOs (total)	
	chronic	acute	chronic	acute		chronic	acute	chronic	acute	chronic	acute
Nickel	7.1	140	0.99	0.99	BP, sw	7.029	138.6	0.56	0.82	12.55	169

vii) *Pollutants with no reasonable potential*: WQBELs are not included in the Order for constituents that do not have reasonable potential. However, monitoring for those pollutants is still required, under the provisions of the Board's August 6, 2001 Letter. If concentrations of these constituents are found to have increased significantly, the Discharger will be required to investigate the source(s) of the increase(s). Remedial measures are required if the increases pose a threat to water quality in the receiving water.

viii) *Permit reopener:* The permit includes a reopener provision to allow numeric effluent limitations to be added for any constituent that in the future exhibits reasonable potential. This determination will be made by the Board based on monitoring results.

2. **Dilution**

The outfalls (E-001 and E-002) are classified by the Board as shallow water discharges. The dilution credit, D, is a numerical value associated with the mixing zone that account for the receiving water entrained into the discharge. The Board has determined that the appropriate dilution credit (D) is zero, for the following reasons: (1) shallow water discharges are prohibited in the Basin Plan (page 4-5). As part of being granted an exception to this discharge prohibition, no dilution credit is granted; (2) as described in Finding 27 in the permit, the Discharger's receiving water, Miller Creek, at times of low tide or drought, is dominated by the effluent. Pursuant to Section 1.4.2.1 of the SIP, "dilution credit may be limited or denied on a pollutant-by-pollutant basis...", the Board calculated effluent limits assuming no dilution (D=0), because there is uncertainty in accurately determining the mixing zone in a complex estuarine system with multiple wastewater discharges.

3. **Assimilative Capacity, Mass Loading, and Mass Emission Limitations**

The Order contains a mass emission limitation for mercury because the Regional Board has determined that there is no additional assimilative capacity for mercury in the San Pablo Bay. This determination is consistent with SIP Section 2.1.1 requirements that the Regional Board consider whether additional assimilative capacity exists for 303(d)-listed bioaccumulative pollutants. This determination was based in part on the fact that a fish consumption advisory currently exists to protect human health from elevated mercury concentrations in fish taken from San Francisco Bay.

4. **Final Water Quality-Based Effluent Limitations**

The final WQBELs were developed for the toxic and priority pollutants that were determined to have reasonable potential. Final effluent limitations were calculated based on appropriate WQOs /WQC and the appropriate procedures specified in Section 1.4 of the SIP (See Attachment 2 of this Fact Sheet). For the purpose of the proposed Order, final WQBELs refer to all non-interim effluent limitations. The WQOs or WQC used for each pollutant having reasonable potential are indicated in Table C below as well as in Attachment 2.

Table D. Water Quality Objectives or Water Quality Criteria for Pollutants with reasonable potential

Pollutant	Chronic WQOs/WQC (µg/L)	Acute WQOs/WQC (µg/L)	Human Health WQC (µg/L)	Basis of Lowest WQOs/WQC Used in RPA
Chromium (VI)	11	16		BP
Copper	5.54	5.78	--	CTR
Lead	5.11	131	--	BP
Mercury	0.025	2.1	--	BP
Nickel	12.55	169	--	BP
Cyanide	1.0	1.0	--	NTR
Bis(2-Ethylhexyl)Phthalate	--	--	5.9	CTR
4,4'-DDE	--	--	0.00059	CTR
Dieldrin	--	--	0.00014	CTR
Heptachlor Epoxide	--	--	0.00011	CTR

5. **Comparison to Previous Permit Limitations**

The previous Order did not include limitations for bis(2-ethylhexyl)phthalate, 4,4'-DDE, dieldrin, and heptachlor epoxide.

Because there is no demonstration of reasonable potential for cadmium and zinc, effluent limitations in the previous Order for these pollutants have not been retained in this Order.

For copper, the interim limitation in this Order is the same as the current interim limitation contained in Order No. 98-112.

For mercury, the interim concentration limitation in this Order is more stringent than the interim concentration limitation contained in Order No. 98-112. The mass limitation for

mercury is unchanged from Order No. 98-112, and the mass trigger value has been reevaluated based on recent plant performance.

The final limitations for hexavalent chromium, lead, nickel, and cyanide are less stringent than the limitations in Order No. 98-112. The final limitations were developed based on the applicable SIP procedures. Under Clean Water Act Sections 402(o)(1) and 303(d)(4), there is an allowable exception to anti-backsliding for a pollutant as long as the relaxation of limits complies with anti-degradation requirements:

Anti-backsliding is not applicable for chromium because the maximum daily (MDEL=16 µg/L) calculated from the SIP, and the daily average calculated from the Basin Plan (Daily Average=11 µg/L) cannot be compared since they are based on WQOs for the protection of aquatic acute and chronic toxicity, respectively, therefore, the MDEL cannot be replaced by the previous permit effluent limitation. In the event antidegradation is considered, this pollutant is monitored on a monthly basis, the final limits in the Order will effectively be more stringent than the previous limit.

Anti-degradation is satisfied for lead, nickel and cyanide because (1) there is new information that was not available when the previous order was issued. Such new information is the site-specific ambient hardness value for lead, site-specific translators for nickel, new SSO and scientific findings for cyanide, and (2) the receiving waters are not identified as impaired for these pollutants (based on the 2002 303(d) list), the new limitations will not result in significantly lower water quality, and the proposed action does not involve significant or substantial increases in pollutant loadings.

6. Interim Limitations

Interim effluent limitations were derived for those constituents (copper, mercury, cyanide, bis(2-ethylhexyl)phthalate, 4,4'-DDE, dieldrin, and heptachlor epoxide) for which the Discharger has shown infeasibility of complying with the respective final limitations and has demonstrated that compliance schedules are justified based on the Discharger's source control and pollution minimization efforts in the past and continued efforts in the present and future. The interim effluent concentration limitations for cyanide, and bis(2-ethylhexyl)phthalate are based on recent plant performance. The interim effluent limitation for copper is based on the previous Order limitation. The interim concentration limitation for mercury is based on the Board's June 11, 2001 *Statistical Analysis of Pooled Data From Regionwide Ultraclean Mercury Sampling for Municipal Dischargers*, which identifies a statistically based level of performance expected of secondary treatment plants. Interim limitations were established for 4,4'-DDE, dieldrin, and heptachlor epoxide based on their respective MLs. The interim limitations are discussed in more detail below.

7. Infeasibility Evaluation

The Discharger's submitted an infeasibility study asserting infeasibility to immediately comply with the WQBELs for copper, mercury, cyanide, bis(2-ethylhexyl)phthalate, 4,4'-DDE, dieldrin, and heptachlor epoxide. Board staff could perform meaningful statistical analyses for copper, mercury, and cyanide. These analyses used statistics of the self-monitoring data to compare the mean, 95th percentile, and 99th percentile to the long-term average (LTA), Average Monthly Effluent Limit (AMEL), and Maximum Daily Effluent Limit (MDEL) calculated using SIP procedure to confirm whether it is feasible for the

Discharger to comply with WQBELs. For the infeasibility analyses, the Board considered all monitoring data from 1998 through 2002 (including both the discharge and no discharge periods). The Board has determined that the entire data set is representative of WWTP performance for the toxic pollutants. If the LTA, AMEL, and MDEL all exceed the mean, 95th percentile, and 99th percentile, it is feasible for the Discharger to comply with WQBELs (See Attachments 5 and 6 for the statistical analysis to derive mean, 95th and 99th percentile of the effluent data). The Table D below shows these comparisons in µg/L:

Table E Summary of Infeasibility Analysis

Constituent	Mean / LTA	95th / AMEL	99th / MDEL	Feasible to Comply
Chromium VI	0.9<5.7	1.7<8.5	2.3<16	Yes
Copper	10.3 > 2.5	17.3 > 3.4	22.0 > 5.8	**No**
Lead	0.3<3.6	1.0<4.6	1.7<7	Yes
Mercury	0.036 > 0.02	0.054 > 0.022	0.067 > 0.035	**No**
Nickel	4.6<8.1	7.5<11	9.4<18.3	Yes
Cyanide	2.8 > 0.3	8.4 > 0.46	12.8 >1.0	**No**

For bis(2-ethylhexyl)phthalate, 4,4'-DDE, dieldrin, and heptachlor epoxide, limited data precluded statistical analysis of feasibility. Board staff, therefore, compared the MECs to the WQBELs (both in µg/L) to determine if the Discharger can achieve immediate compliance with the final limitations (see Table E below).

Table F Summary of Feasibility Analysis

Constituent	AMEL	MDEL	MEC	Is MEC > AMEL	Feasible to Comply
Bis(2-Ethylhexyl)Phthalate	5.9	11.8	16	Yes	No
4,4'-DDE	0.00059	0.00118	0.01*	Yes	No
Dieldrin	0.00014	0.00028	0.01*	Yes	No
Heptachlor Epoxide	0.00011	0.00022	0.01*	Yes	No

* MEC = ML

This permit establishes compliance schedules until November 30, 2008 for copper, mercury, cyanide, bis(2-ethylhexyl)phthalate, 4,4'-DDE, dieldrin, and heptachlor epoxide.

During the compliance schedules, interim limitations based on current treatment facility performance or on existing permit limitations, whichever is more stringent (unless anti-backsliding requirements are met), are included to maintain existing water quality. The Board may take appropriate enforcement actions if interim limitations and requirements are not met.

j) *Copper – Further Discussion and Rationale for Interim Effluent Limitation:* Interim effluent limitations are required for copper because the Discharger has demonstrated, and Board staff's analysis verified, that it is infeasible to immediately attain the final effluent limitations calculated according to the SIP (AMEL of 3.4 µg/L and MDEL of 5.8 µg/L). The SIP requires the interim numeric effluent limitation for the pollutant be based on either current treatment facility performance, or on the previous Order's limitation, whichever is

more stringent. Statistical analysis of effluent data for 1998-2002 indicates a 99.87th percentile value of 28.5 µg/L (based on a log-normal data distribution). Because the current effluent limitation for copper (17 µg/L) is more stringent than the calculated interim performance-based limitation (IPBL), it is retained in this Order.

k) *Mercury – Further Discussion and Rationale for Interim Effluent Concentration Limitation:* Interim effluent limitations are required for mercury since the Discharger has demonstrated, and Board staff's analysis verified, that it is infeasible to immediately attain the final effluent limitations calculated according to the SIP (AMEL of 0.022 µg/L and MDEL of 0.035 µg/L). The SIP requires the interim numeric effluent limitation for the pollutant be based on either current treatment facility performance, or on the previous Order's limitation, whichever is more stringent. The effluent limitation for mercury in Order 98-112 is 0.11 µg/L. The IPBL for mercury is based on the June 11, 2001 staff report's identification of a statistically derived mercury IPBL of 0.087 µg/L for secondary plants.

l) *Cyanide – Further Discussion and Rationale for Interim Effluent Limitation:* Interim effluent limitations are required for cyanide because the Discharger has demonstrated, and the Board staff's analysis verified, that it is infeasible to immediately attain the final effluent limitations calculated according to the SIP (AMEL of 0.48 µg/L and MDEL of 1.0 µg/L). The final WQBELs may be recalculated based on a cyanide site-specific objective (SSO). Statistical analysis of 1998-2002 cyanide effluent data indicates a 99.87th percentile value (log-normal distribution basis) of 19 µg/L (see Attachment 5 for the analysis details). The IPBL is included in this Order even though it is higher than the 5 µg/L limit included in Order No. 98-112, see discussion of the rationale in Section 5 above.

m) *Bis(2-ethylhexyl)phthalate – Further Discussion and Rationale for Interim Effluent Limitation:* Interim effluent limitations are required for bis(2-ethylhexyl)phthalate because the Discharger has demonstrated, and Board staff's analysis verified, that it is infeasible to immediately attain the final effluent limitations calculated according to the SIP (AMEL of 5.9 µg/L and MDEL of 12 µg/L). Board staff considered self-monitoring data from 1998 and 2002 to develop an IPBL. The data only contained one detected value among nine samples, and therefore, it was not possible to perform a meaningful statistical evaluation of current treatment performance. The existing Order also does not contain an effluent limitation for bis(2-ethylhexyl)phthalate. Therefore, the IPBL is set at the MEC of 16 µg/L.

n) 4,4'-DDE, Dieldrin, and Heptachlor Epoxide – Further Discussion and Rationale for Interim Effluent Limitations: Interim effluent limitations are required for these pollutants because effluent values are non-detect and the detection limits are above water quality objectives. In addition, the MLs for these pollutants are higher than the final WQBELs (AMEL of 0.00059 µg/L and MDEL of 0.00118 µg/L for 4,4'-DDE; AMEL of 0.00014 µg/L and MDEL of 0.00028 µg/L for dieldrin; and AMEL of 0.00011 µg/L and MDEL of 0.00022 µg/L for heptachlor epoxide) and compliance with them cannot be determined at this time. The existing permit does not include limitations for these pollutants. Since the Discharger cannot accurately determine, nor the Board verify, compliance at levels below the MLs, the IPBLs are set at the respective MLs, 0.05 µg/L for 4,4'-DDE and 0.01 µg/L for dieldrin and heptachlor epoxide.

8. **Attainability of Interim Performance-Based Limitations**

i. Copper

In 30 samples collected from November 1998 through December 2002, only two samples exceeded the IPBL (19 and 25 µg/L). Based on treatment plant performance from 1998 through 2002, the proposed IPBL for copper should be consistently and immediately attainable.

ii. Mercury

Self-monitoring data from November 1998 through December 2002 show that effluent mercury concentrations ranged from 0.018 to 0.077 µg/L. These data indicate that the Discharger will be able to meet the IPBL of 0.087 µg/L.

iii. Cyanide

Self-monitoring data from November 1998 through December 2002 show an MEC for cyanide of 10 µg/L. The MEC is less than the IPBL of 19 µg/L and, therefore, the interim limitation for cyanide should be consistently and immediately attainable.

iv. Bis(2-Ethylhexyl)Phthalate

Self-monitoring data from November 1998 through December 2002 indicate that the only detected concentration of bis(2-ethylhexyl)phthalate was 16 µg/L. In addition, bis(2-ethylhexyl)phthalate is a common laboratory contaminant and the detected value may not have been associated with WWTP effluent quality. The interim effluent limitation, therefore, should be consistently and immediately attainable. The Discharger is also required by Provision E. 4 to conduct a special study for BEHP that will investigate whether laboratory sampling, sample handling, and sample analysis of BEHP properly reflect the Discharger's final effluent.

v. 4,4'-DDE, Dieldrin, and Heptachlor Epoxide

These pollutants were not detected in effluent samples from November 1998 through December 2002. The interim effluent limitation, therefore, should be consistently and immediately attainable..

j) Effluent Limitation B.10 (Mercury Mass Emission Limit and Mass Trigger).

This Order includes an interim mercury mass-based effluent limitation of 0.41 kilograms per year (kg/year) and a mass trigger of 0.013 kg/month. The mass-based effluent limitation is retained from the previous Order. The mass trigger was calculated using ultra-clean mercury data collected from 1998 through 2002 as shown in Attachment 3. If the mass trigger is exceeded, then the actions specified in Provision E.9 are required. The mass limit and trigger will maintain current loadings until a TMDL is established for San Pablo Bay. If the Discharger is found to be contributing to mercury impairment in San Pablo Bay, the final mercury effluent limitations will be based on the Discharger's WLA in the TMDL.

The inclusion of interim performance-based mass limits for bioaccumulative pollutants such as mercury is consistent with the guidance described in section 2.1.1 of the SIP. Because of their bioaccumulative nature, an uncontrolled increase in the total mass loads of these pollutants in the receiving water will have significant adverse impacts on the aquatic ecosystem.

5. Basis for Receiving Water Limitations

a) Receiving water limitations C.1, C.2, and C-3 (conditions to be avoided): These limitations are based on the previous Order and the narrative/numerical objectives contained in Chapter 3 of the Basin Plan, pages 3-2 – 3-5.

b) Receiving water limitation C.4 (compliance with State Law): This requirement is in the previous permit, requires compliance with Federal and State law, and is self-explanatory.

6. Basis for Biosolids/Sludge Management Practices

These requirements are based on Table 4.1 of the Basin Plan and 40 CFR 503.

7. Basis for Self-Monitoring Requirements

The SMP includes monitoring at the outfalls for conventional, non-conventional, and toxic pollutants, and acute and chronic toxicity. Many of the monitoring requirements have not been changed from Order No. 98-112. The monitoring frequency for TSS has been increased from three times per week to five times per week, while the settleable matter sampling frequency is reduced to monthly from daily. Daily performance monitoring is appropriate for major POTWs and TSS provides an effective and relatively inexpensive measure of day-to-day performance. This Order requires monthly discharge season monitoring for hexavalent chromium, copper, lead, mercury, nickel, and cyanide demonstrate compliance with effluent limitations. Twice yearly monitoring is required for bis(2-ethylhexyl)phthalate because it was only detected once in the effluent and may have been a laboratory contaminant. Because they were not detected in the effluent during 1998-2002, this Order also requires twice yearly monitoring (during discharge season) for 4,4-DDE, dieldrin, and heptachlor epoxide to demonstrate compliance with interim effluent limitations. Until analytical methods improve and MLs are lowered, more frequent monitoring will not generate more useful data. For dioxins and furans, this Order further requires twice yearly monitoring using methods with low detection limits.

8. Basis for Provisions

a) Provisions E.1. (Permit Compliance and Rescission of Previous Permit): Time of compliance is based on 40 CFR 122. The basis of this Order superceding and rescinding the previous permit Order is 40 CFR 122.46.

b) Provision E.2. (Effluent Monitoring): This provision, which requires the Discharger to conduct effluent water monitoring as provided for in the August 6, 2001 letter, is based on the Basin Plan and the SIP.

c) Provision E.3. (Cyanide Compliance Schedule and Cyanide SSO Study). This provision, based on BPJ, requires the Discharger to participate in regional efforts to develop an SSO for cyanide and other ongoing studies to evaluate cyanide analytical methods and control options.

d) Provision E.4. (Bis(2-ethylhexyl)phthalate Laboratory Analysis Study): This provision, based on BPJ, requires the Discharger to conduct a special study for BEHP that will investigate whether laboratory sampling, sample handling, and sample analysis of BEHP properly reflect the Discharger's final effluent.

e) Provision E.5. (Pollutant Prevention and Minimization Program): This provision is based on the Basin Plan, pages 4-25 – 4-28, and the SIP, Section 2.1.

f) Provision E.6. (Whole Effluent Acute Toxicity): This provision establishes conditions by which compliance with permit effluent limitations for acute toxicity will be demonstrated. Under this Order, the Discharger is required to use the most up-to-date protocols in 40 CFR Part 136, currently in "Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms," 5th Edition.

g) Provision E.7. (Whole Effluent Chronic Toxicity): This provision establishes conditions and protocol by which compliance with the Basin Plan narrative WQO for toxicity will be demonstrated. Conditions include required monitoring and evaluation of the effluent for chronic toxicity and numerical values for chronic toxicity evaluation to be used as 'triggers' for initiating accelerated monitoring and toxicity reduction evaluation(s). This provision requires the Discharger to conduct a screening phase test for the next permit reissuance. The conditions in the permit for chronic toxicity are based on the Basin Plan narrative WQO for toxicity, Basin Plan effluent limits for chronic toxicity (Basin Plan, Chapter 4), U.S. EPA and SWRCB Task Force guidance, applicable federal regulations [40 CFR 122.44(d)(1)(v)], and BPJ.

h) Provision E.8. (Chronic Toxicity Evaluation): Chronic toxicity was consistently observed in the effluent from March 1999 through January 2003. The sources of this toxicity have not been determined to date. This provision requires the Discharger to identify the probable causes of the toxicity through TIE/TRE and is consistent with Provision E.8 of this Order.

i) Provision E.9. (Mercury Mass Loading Reduction): This provision will help to ensure no increases in mercury mass loadings until a TMDL and WLA are established. The Board's determination of the need to maintain mass loadings at current levels for this bioaccumulative pollutant is based on Section 2.1.1 of the SIP.

j) Provision E.10. (Copper Study and Schedule): This provision, based on BPJ, requires the Discharger to participate in regional efforts to develop an SSO for copper and an action plan to prevent unacceptable future increases in copper concentrations in San Francisco Bay north of Dumbarton Bridge.

k) Provision E.11. (Bacteriological Studies): Consistent with the Basin Plan and U.S. EPA guidance, this provision requires the Discharger to conduct a confirmation study to demonstrate that the enterococcus limitations included in the Order are protective of all of the designated uses of the receiving waters (Miller Creek and San Pablo Bay). In addition, the study must verify the "light contact" recreational use scenario upon which the limitations are based

l) Provisions E.12. (Collection System Improvements), E.13. (Wastewater Treatment Facility Improvements, and E.15. (Reduction of Non-discharge Season and Reclamation Plan). These

provisions are based on BPJ, and are consistent with the need to ensure reliable treatment and with the conditions of granting the exception from the Basin Plan discharge prohibition. The Discharger has experienced high levels of infiltration and inflow during the wet season. In addition, while the WWTP has consistently met effluent limitations, facility improvements are needed to optimize operational control and provide for redundancy. Finally, the Discharger needs to maximize on- and off-site reclamation opportunities

The Discharger has already undertaken (or is planning to undertake during the next 3 years) a number for projects to address the above concerns. Provisions E.12 and E.13 require the Discharger to report to the Board annually on specific measures to improve the collection system and treatment facility performance and Provision E.15 requires submittal of and annual updates to a reclamation plan.

m) Provision E.14. (Dry Weather Flow Capacity Analysis): This provision based on California Code of Regulations, Title 23. Waters, § 2232 Ensuring Adequate Capacity, BPJ, is intended to ensure the reliability of the treatment facilities. Such action is necessary since the dry weather flows have been approaching the dry weather capacity of the facility.

n) Provisions E.16. (Wildlife and Reclamation Storage Pond Operation) and E.17. (Miller Creek Public Access): These provisions, which are based on BPJ, are retained from the previous Order.

o) Provision E.18. (Optional Mass Offset): This option is provided to encourage the Discharger to further implement aggressive reduction of mass loads to Miller Creek and San Pablo Bay.

p) Provision E.19. (Wastewater Facilities, Review and Evaluation, Status Reports): This provision is based on the previous Order and the Basin Plan.

q) Provision E.20. (Operations and Maintenance Manual and Status Report), E.21. (Contingency Plan Update), and E.22. (Annual Status Reports): These provisions are based on the Basin Plan, the requirements of 40 CFR 122, and the previous Order.

r) Provision E.23. (303(d)-listed Pollutants Site-Specific Objective and TMDL Status Review): Consistent with the SIP, the Discharger shall participate in the development of TMDLs and SSOs for mercury, selenium, 4,4'-DDE, dieldrin, dioxin, and PCBs. By January 31 of each year, the Discharger shall submit an update to the Board to document progress made on source control and pollutant minimization measures and development of TMDL or SSO. Regional Board staff shall review the status of TMDL development. This Order may be reopened in the future to reflect any changes required by TMDL development.

s) Provision E.24. (Self-Monitoring Program): The Discharger is required to conduct monitoring of the permitted discharges in order to evaluate compliance with permit conditions. Monitoring requirements are contained in the Self Monitoring Program (SMP) of the Permit. This provision requires compliance with the SMP, and is based on 40 CFR 122.44(i), 122.62, 122.63 and 124.5. The SMP is a standard requirement in almost all NPDES permits issued by the Board, including this Order. It contains definitions of terms, specifies general sampling and analytical protocols, and sets out requirements for reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Board's policies. The SMP also contains a sampling program specific for the facility. It defines the sampling stations and frequency, the pollutants to be

monitored, and additional reporting requirements. Pollutants to be monitored include all parameters for which effluent limitations are specified. Monitoring for additional constituents, for which no effluent limitations are established, is also required to provide data for future completion of RPAs for them.

t) Provision E.25. (Standard Provisions and Reporting Requirements): The purpose of this provision is require compliance with the standard provisions and reporting requirements given in the Board's *Standard Provisions and Reporting Requirements for NPDES Surface Water Discharge Permits, August 1993* (the Standard Provisions), or any amendments thereafter. That document is incorporated in the permit as an attachment to it. Where provisions or reporting requirements specified in the permit are different from equivalent or related provisions or reporting requirements given in the Standard Provisions, the permit specifications shall apply. The standard provisions and reporting requirements given in the above document are based on various state and federal regulations with specific references cited therein.

u) Provision E.26. (Change in Control or Ownership): This provision is based on 40 CFR 122.61.

v) Provision E.27. (Permit Reopener): This provision is based on 40 CFR 123.

w) Provision E.28. (NPDES Permit /U.S. EPA concurrence): This provision is based on 40 CFR 123.

x) Provisions E.29. (Permit Expiration and Reapplication): This provision is based on 40 CFR 122.46(a).

VI. SELF-MONITORING PROGRAM REQUIREMENTS

General Basis

Part A of the monitoring program is a standard requirement in almost all NPDES permits issued by the Board. Most of the requirements are also existing requirements for the discharger. Part A contains definitions, specifies general sampling and analytical protocols, and specifies reporting of spills, violations, and routine monitoring data in accordance with NPDES regulations, the California Water Code, and Board policy. Part B of the monitoring program is specific for the discharger. It defines the stations, constituents, and frequency of monitoring, and additional reporting requirements. The constituents required to be monitored include all parameters for which Permit limits are specified. This is to allow determination of compliance with each of the limited constituents in accordance with 40 CFR 122.44(i).

VII. WRITTEN COMMENTS

- Interested persons are invited to submit written comments concerning this draft permit.
- Comments should be submitted to the Board no later than 5:00 P.M. on November 17, 2003
- Comments received after this date may not receive full consideration in the formulation of final determinations of permit conditions.
- Comments should be submitted to the Board at the address given on the first page of this fact sheet, and addressed to the attention of: Ms. Gina Kathuria

VIII. PUBLIC HEARING

- The draft permit will be considered for adoption by the Board at a public hearing during the Board's regular monthly meeting to be held on: December 3, 2003, starting at 9:00 a.m.

- This meeting will be held at:

Main Floor Auditorium
Elihu Harris State Office Building,
1515 Clay Street, Oakland, California

IX. WASTE DISCHARGE REQUIREMENT APPEALS

Any person may petition the State Water Resources Control Board to review the decision of the Board regarding the Waste Discharge Requirements. A petition must be made within 30 days of the Board public hearing.

X. ADDITIONAL INFORMATION

For additional information about this matter, interested persons should contact the following Regional Board staff member: Ms. Gina Kathuria, Phone number: (510) 622-2378, or by email at gk@rb2.swrcb.ca.gov.

XI. WASTE DISCHARGE REQUIREMENT APPEALS

Any person may petition the State Water Resources Control Board to review the decision of the Board regarding the Waste Discharge Requirements. A petition must be made within 30 days of the Board public hearing.

XII. ATTACHMENTS

Attachment 1: RPA Results for Priority Pollutants
Attachment 2: Calculation of Final WQBELs
Attachment 3: Calculation of Mercury Mass Trigger
Attachment 4: Effluent Data (November1998 – December 2002)
Attachment 5: Statistical Analysis of Cyanide Effluent Data for the Development of Interim Performance-based Effluent Limit
Attachment 6: Statistical Analysis of Effluent Data for Infeasibility Determination (Chromium VI, Nickel, Lead, Copper, and Mercury)

Attachment H

Las Gallinas Valley Sanitary District
Final Effluent Limits Infeasibility Study
October 17, 2003

EOA, Inc.

MEMORANDUM

TO: Al Petrie, LGVSD
For submission to the RWQCB

FROM: Ray Goebel/Kristin Kerr

DATE: Draft version: April 4, 2003
Revised October 17, 2003

SUBJECT: **Las Gallinas Valley Sanitary District Final Effluent Limits Infeasibility Study**

1.0 INTRODUCTION

This memorandum evaluates whether the Las Gallinas Valley Sanitary District (District) could immediately comply with final effluent limits for constituents found to have reasonable potential (RP) to cause or contribute to an exceedance of water quality objectives. It also presents the rationale and recommendations for interim effluent limits for inclusion in the reissued NPDES permit for each constituent for which the District cannot immediately comply with the proposed final effluent limits.

On behalf of the District, EOA prepared the March 28, 2003 *Draft Reasonable Potential Analysis and Effluent Limits Calculation* using the 2/7/03 spreadsheet developed by RWQCB staff. The analysis used discharge season (May-October) compliance data collected over the four year period from November 1998 through December 2002). A longer period (four years versus the normal three years) was selected because of the smaller pool of available compliance data available as a result of the non-discharge season. In conducting the RPA, there are areas where certain assumptions must be made and judgments applied. Examples include the criteria used for selection of background station(s), use of default conversion factors versus site specific translators, use of background total metals data instead of translated background dissolved data, use of minimum hardness values, and making RP findings based on insufficient and/or questionable (e.g., potential outlier) data rather than of first collecting additional data. The results of the RPA can vary depending on which assumptions and judgments are applied. The RPA process continues to evolve as RWQCB staff and Discharger representative attempt to refine the process so that it is reasonable, protective of the environment, and based on sound science to the greatest extent possible.

In preparing the permit, the RWQCB conducted a RPA based on the same data set, but using a different hardness value, and in some cases, a different translator. The RWQCB analysis used water quality objectives from the Basin Plan in addition to CTR criteria. (EOA's draft analysis had assumed that by the time of the permit renewal, the proposed Basin Plan Amendments would have progressed to the point where only CTR-based criteria would be used in the RPA). The RWQCB's analysis is documented in the RPA workbook and summarized in the Permit findings. Results presented in this revised memo are consistent with the RWQCB's analysis.

2.0 TREATMENT PLANT BACKGROUND INFORMATION

The District's treatment plant treats wastewater from domestic and commercial sources from the northern area of the City of San Rafael. The District's service area has a population of about 28,000. The treatment plant has an average dry weather flow design capacity of 2.92 million gallons per day (MGD). The treatment process consists of aerated grit chambers, screen, primary sedimentation clarifier, twin trickling filters and intermediate clarifiers, fixed film reactor, secondary clarifier, deep-bed filters, disinfection with chlorination and dechlorination (dechlorination is not used during the non-discharge season).

The District operates a wastewater reclamation project that includes a 20 acre wildlife marsh pond, 40 acres of storage ponds, 200 acres of irrigated pasture and 3-1/2 miles of public trails. In addition, Marin Municipal Water District (MMWD) operates a tertiary filtration water reclamation facility located immediately adjacent to the treatment plant. MMWD treats the District's secondary effluent to produce tertiary disinfected recycled water which it distributes for a number of uses ranging from landscape irrigation to indoor second plumbing systems. The current NPDES Order 98-112 prohibits discharge to Miller Creek from June 1 to October 31.

3.0 INFEASIBILITY STUDY BACKGROUND

The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (known as the State Implementation Policy (SIP)) establishes statewide policy for NPDES permitting. The SIP provides for the situation where an existing NPDES discharger cannot immediately comply with an effluent limitation derived from a California Toxics Rule (CTR) criterion or Basin Plan (BP) objective. The SIP allows for the adoption of interim effluent limits and a schedule to come into compliance with the final limit in such cases. To qualify for interim limits and a compliance schedule, the SIP requires that an existing discharger demonstrate that it is infeasible to achieve immediate compliance with the BP or CTR-based limit.

The term "infeasible" is defined in the SIP as "not capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social and technological factors."

The SIP Section 2.1 requires that the following information be submitted to the Regional Board to support a finding of infeasibility and authorization for compliance schedules:

(a) *documentation that diligent efforts have been made to quantify pollutant levels in the discharge and sources of the pollutant in the waste stream, and the results of those efforts;*
(b) *documentation of source control and/or pollution minimization efforts currently under way or completed;*
(c) *a proposed schedule for additional or future source control measures, pollutant minimization actions or waste treatment (i.e. facility upgrades); and*
(d) *a demonstration that the proposed schedule is as short as practicable.*

The SIP Section 2.2.1 requires that interim numeric effluent limits be based on (a) current treatment facility performance or (b) limits in the existing permit, which ever is more stringent. If a facility is unable to comply with a more stringent existing limit, the SIP directs that the non-

compliance needs to be addressed through an enforcement action before the permit can be reissued, unless it complies with anti-backsliding requirements.

The SIP also requires that compliance schedules be limited to specific time periods, depending on whether the constituent is on the 303(d) list. For CTR based criteria not on the 303(d) list, the maximum length of the compliance schedule is 5 years from the date of permit issuance, versus 10 years for compliance with Basin Plan criteria. For pollutants on the 303(d) list (where a TMDL is required to be prepared), the maximum length of the compliance schedule is 20 years from the effective date of the SIP. However, TMDL based schedules have typically been limited to 10 years in SIP based permits.

Pursuant to SIP Section 2.1.1, to secure a TMDL-based compliance schedule, a discharger must make "appropriate commitments to support and expedite development of the associated TMDL." Appropriate commitment is further defined in the SIP where it states that "In determining appropriate commitments, the RWQCB should consider the discharge's contribution to current loadings and the discharger's ability to participate in TMDL development."

4.0 CONSTITUENTS EVALUATED FOR INFEASIBILITY OF IMMEDIATE COMPLIANCE

EOA has classified the results of the draft reasonable potential analyses into two categories of toxic constituents relative to establishment of water quality based effluent limits (WQBELs). These are 1) constituents with probable RP based on Maximum effluent concentrations (MEC), and 2) constituents with questionable RP based on receiving water only. Because of limited or questionable data for each constituent, there are varying degrees of uncertainty associated with the determinations of which constituents may require WQBELs.

4.1 Constituents with Probable MEC-Based RP

Constituents for which WQBELs appear required based on one or more maximum effluent concentrations (MEC) exceeding appropriately adjusted Basin Plan or CTR water quality objectives/criteria pursuant to 40 CFR 122.44(d)(1)(i) reasonable potential criteria include:[1]

- Copper
- Cyanide
- Mercury
- Bis(2-Ethylhexyl)Phthalate

The finding of RP for bis(2-ethylhexyl)phthalate was based on a single detectable result out of the nine samples collected during the 1998-2002 discharge seasons.

4.2 Constituents with Questionable Receiving Water Only Based RP

The finding of RP for the following metals and organics was based solely on the existence of background receiving water (RMP BD20 San Pablo Bay station) datapoints for each constituent that exceeded the corresponding BP or CTR water quality objectives/criteria (pursuant to SIP Section 1.3 Step 6). The RPAs conducted by EOA and the RWQCB's found RP for the same

[1] Based on use of translators derived from site-specific studies or RMP data collected in San Pablo Bay (BD20). See RPA.

constituents, except that the RWQCB's findings included nickel, lead, and hexavalent chromium, because Basin Plan objectives were also used in the RWQCB's analsys.

- Nickel
- Lead
- Hexavalent Chromium[2]
- 4,4-DDE
- Dieldrin
- Heptachlor Epoxide

None of the above organic constituents were detected in the District's effluent. Section 5.3 of this memo addresses the issue of whether it is appropriate or necessary (under the SIP) to make a determination of RP and calculate effluent limits for these constituents.

5.0 FINAL EFFLUENT LIMIT ATTAINABILITY AND INTERIM LIMITS

The *Draft Reasonable Potential Analysis and Effluent Limits Calculation* memo calculated both average monthly effluent limits (AMELs) and maximum daily effluent limits (MDELs). Similar calculations were made by the RWQCB in its Reasonable Potential Analysis. In some cases, effluent limits calculated by RWQCB differed slightly from those in EOA's draft analysis, because of different hardness or translator values used by the RWQCB. The AMELs are numerically lower and are usually the controlling limits, since most constituents are only sampled on a monthly or less frequent basis. The discussion below therefore initially compares historic and projected future effluent quality with the AMEL for compliance feasibility determinations.

Where possible, the RWQCB calculated interim performance-based effluent limits (IPBLs) based on mean plus three standard deviations of the last three years of log-transformed effluent data. IPBLs calculated in this manner approximate the 99.87th percentile of plant performance, a value that the plant would only be expected to exceed once every three years. Where the datasets contain a significant number of non-detect values (e.g., cyanide), probit analyses (plots) are also presented as an alternative means of generating a 99.87th percentile performance value. The RWQCB's RPA workbook includes the available effluent data, results of the RPA, and calculation of the final effluent limits and IPPBLs.

5.1 Calculated Final Limits

The RWQCB's calculated final average monthly effluent limits (AMELs) and maximum daily effluent limits (MDELs) are shown in Table 1. These were calculated by using procedures described in Section 1.4 of the SIP, using the November 1998 – December 2002 dataset used for the RPA. Background concentrations were shown in the spreadsheets but not used in these effluent limit calculations because the discharge does not receive any dilution credit. With a dilution credit of zero, the effluent concentration allowance (ECA) values are set equal to the associated criteria.

A comparison of the MEC with the AMEL concentrations shows that all detectable values for the constituents with RP exceed the corresponding AMEL, except in the case of hexavalent

[2] The RWQCB's finding of RP for hexavalent chromium is based on RMP ambient background data for total chromium.

chromium, nickel, and lead. (For these constituents, compliance with the calcululated AMEL was determined to be feasible). This is expected given that most of the AMELs are equal to the WQOs used for the RPA. This table demonstrates the infeasibility to immediately comply with the AMELs (ecept for hexavalent chromium, nickel, and lead) based on available information. More rigorous evaluations presented below based on AMEL comparisons with calculated plant performance further support this infeasibility conclusion.

Table 1. Calculated Effluent Limits

CTR #	Constituent	MDEL (ug/L)	AMEL (ug/L)	MEC (ug/L)	# ND/ Total #	# detects > WQO/ Total #	Min DL (ug/L)	SIP ML (ug/L)
6	Copper	5.8	3.4	25	0/30	30/30		
8	Mercury	0.035	0.022	0.077	0/29	2/29		
14	Cyanide	1.0[1]	0.48	10	11/26	15/26	3	5
68	Bis(2-ethylhexyl)Phthalate	12	5.9[1]	16	8/9	1/9	5	0.5
5b	Hex. Chromium	16	8.5	2.2	14/29	0	0.5	1
9	Nickel	18	11	8.2	5/29	0		1
7	Lead	7	4.6	2	19/29	0		0.5
109	4,4-DDE	0.0012	0.00059[1]	N/A	9/9	0/9	0.01	0.05
111	Dieldrin	0.00028	0.00014[1]	N/A	9/9	0/9	0.01	0.01
118	Heptachlor Epoxide	0.00022	0.00011[1]	N/A	9/9	0/9	0.01	0.01

Notes: 1. Limit = WQO
2. MEC N/A = not applicable. The minimum detection limit is greater than the lowest WQO, therefore the MEC is not determined.

5.2 Compliance Infeasible Constituents and Recommended Interim Limits

The District would not be able to comply with potential final AMELs for copper, mercury, cyanide, bis(2-ethylhexyl)phthalate, 4,4-DDE, dieldrin, and heptachlor epoxide.Table 2 lists the possible interim performance-based limits (IPBLs) for copper, mercury, cyanide, bis(2-ethylhexyl)phthalate. In these IPBL calculations, non-detect values were included at the respective detection limits. Values selected for interim limits are indicated in bold. The results are discussed below.

Table 2. Interim Performance Based Limits
(all concentrations in ug/L)[1]

	Copper	Mercury	Cyanide	Bis(2-ethylhexyl) phthalate
99.7th %ile (log-normal distrib.)	28.5	0.084	12	136
99.7th %ile (probit analysis)	30	0.087	18	
MEC	25	0.077	10	**16**
Pooled Data IPBL[2]		**0.087**[2]	**25**[3]	
Previous Limit	**17**	0.11	5	

Notes:
1. Non-detectable results were evaluated at the detection limit
2. Monthly average IPBL computed for mercury –see June 11, 2001 *Staff Report, Statistical Analysis of Pooled Data from Region-Wide Ultra-clean Mercury Sampling.*
3. Monthly average IPBL computed for cyanide – see "Cyanide Pooled Data Analysis", Attachment D of Napa Sanitation District Order No.R2-2002-0111.

Copper

All 30 effluent values from the November 98 – December 02 period exceeded the calculated AMEL value of 4.25 ug/L, indicating that an interim limit is required. Two values exceeded the current 17 ug/L limit.[3] Table 2 lists possible interim performance-based limits (IPBLs) that were calculating based on average concentration plus three standard deviations (the 99.7th percentile) for a given time period, for geometric (log-normal) distributions. Table 2 also list the 99.7th percentile value as determined by a probit analysis, and the observed MEC.

For copper, where all results were detectable, the IPBL based on the log-normal distribution (28.5 ug/L) is probably the most representative and appropriate measure. However, Section 2.2.1 of the SIP states that interim limits be based on the lower of current treatment plant performance or the existing permit limitations. Based on their evaluation of discharge data, RWQCB staff believe that it is feasible for the District to comply with an IPBL of 17 ug/L.

Mercury

Two mercury values from the November 98 – December 02 period exceeded the calculated AMEL value of 0.051 ug/L, indicating that an interim limit is required. (26 of the values exceeded the current Basin Plan limit of 0.025 ug/L). The calculated 99.87th percentile value (geometric basis) is 0.084 ug/L. The RWQCB's June 2001 analysis of pooled mercury data from all secondary treatment plants had a 99.87th percentile mercury concentration of 0.087 ug/L. Consistent with other recently issued permits, RWQCB staff selected the 0.087 ug/L value as an IPBL. Staff also intend to retain the previous permit's mass emission limit, and established a new performance-based mass trigger of 0.013 kg/mo. The interim mass and concentration limits will remain effective until November 30, 2008. Final mercury WQBELs will be established based on waste load allocations established by the mercury TMDL.

Cyanide

All detected effluent cyanide values (11 of 30) from the November 98 – December 02 period were greater than the calculated AMEL of 0.5 ug/L, indicating that an interim limit is required. Four values exceeded the SIP-based ML and current permit limit of 5 ug/L. Current analytical methodologies are unable to measure cyanide below 3 to 5 ug/L in wastewater effluent matrices. Therefore, it would be impossible to evaluate compliance with an AMEL set at 0.5 ug/L. It is also believed to be currently infeasible to measure background receiving water concentrations at or below the CTR WQO of 1.0 ug/L.

The ambient background data set from the RMP includes forty-eight samples for total and dissolved cyanide collected in 1993. All samples were non-detect (<1 ug/L). For other constituents with limited or no background data, RWQCB staff have determined that final effluent limits could not be calculated and that monitoring should continue and/or that IPBLs be established.

Table 2 lists plant performance values calculated in the manner described above. Because of the relatively high number of non-detect values, Table 2 also includes results from a probit

[3] One of these exceedences occurred in May 2001 (19 ug/L). However, in both 2001 and 2002, the plant initiated its non-discharge (reclamation) season in May, a month earlier than required under the permit. Therefore, the May 2001 value did not actually constitute an exceedence of the effluent limit.

analysis of the District's data, and results from a pooled data analysis conducted by the RWQCB on data from secondary activated sludge plants.

The SIP Section 2.2.1 states that interim limits be based on the lower of current treatment plant performance or the existing permit limitations. The existing permit limitation for cyanide is 5 ug/L. It has been shown above that the District could not meet this limit.

SIP Section 2.2.1 also states "If the existing permit limitations are more stringent, and the discharger is not in compliance with those limitations, the noncompliance under the existing permit must be addressed through appropriate enforcement action before the permit can be reissued, unless antibacksliding provisions are met." In this instance for cyanide, multiple exceptions to the antibacksliding provisions of the Clean Water Act Section 402(0)(1) appear to be met and thus enforcement action (e.g., Cease and Desist Order) should not be required.

CWA Section 402(o)(2)(B)(i) provides for an exception when:

> "Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance."

CWA Section 402(o)(2)(E) also provides for an applicable exception when:

> "The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification)."

New information is available in part, as discussed above, based on the recently completed (late 2002) Water Environment Research Foundation (WERF) Cyanide Study. That study supports the conclusion that compounds showing up positive in cyanide analyses appear to be created as part of the treatment process and/or are an artifact of the available analytical methods. New information based on recent performance also indicates that compliance is more variable than previously believed.

The frequency and magnitude of excursions has increased relative to the period preceding the existing permit for no readily apparent reasons, and without available corrective remedies. Such an increase has also been observed at other Bay Area POTWs. The District has installed required treatment facilities (secondary) and has been properly operating and maintaining them as evidenced by its consistently high quality effluent (average discharge season TSS of 15.4 mg/L.)

Therefore, the District believes that based on compliance with these anti-backsliding exemption criteria that an updated limit and compliance schedule for cyanide based on plant performance or pooled data analysis is justified (without a CDO). During the compliance schedule period the District and other similarly impacted dischargers and Board staff would continue to investigate potential causes and controls, and alternative regulatory control measures such as site specific objectives, fate and transport studies, alternate limits, limited shallow water dilution credit, variances, and other allowable courses of action. This work would be a continuation and

expansion of efforts already underway by BACWA, and the District would participate as a BACWA member.

Bis(2-ethylhexyl)phthalate

Eight of the nine effluent bis(2-ethylhexyl)phthalate concentrations from November 98 – December 02 period were non-detect, at varying detection limits (<5 ug/L, <6 ug/L, or <25 ug/L). One value was detectable at 16 ug/L, which exceeds the AMEL of 5.9 ug/L (limit=water quality objective). This compound is used in many plastics and as such is a common contaminant in many effluent samples due to plastic sample lines and containers and is even found in laboratory blank samples. A decision needs to be made whether there is a reasonable basis for establishing RP based on this single value and if so if a credible interim limit can be calculated on the basis of effluent data dominated by non-detectable values.

Since there was no prior limit for bis(2-ethylhexyl)phthalate, a performance-based interim limit is needed. Because it is based on a single detection (and detection limits exceeded this value in the pre-2001 samples), the MEC value of 16 ug/L may not reflect the true range of variability in the plant effluent. However, the calculated 99.7th percentile value of 136 ug/L (log-normal distribution basis) also does not seem reasonable. RWQCB staff intend to use the 16 ug/L MEC value as an IBBL:

5.3 Compliance Uncertain Constituents

4,4-DDE, dieldrin, and heptachlor epoxide

SIP sections 1.2, 1.3 and 1.4 at several points require a determination of whether data are unavailable or insufficient to conduct an RPA and calculate effluent limits. If not, the SIP directs one to Section 2.2.2 where the RWQCB can specify interim monitoring requirements instead of setting effluent limits. Additional monitoring in lieu of effluent limits for the District appears reasonable and appropriate for constituents where all effluent data were nondetectable and resultant final limits would be lower than the lowest detection limits currently available for effluent compliance monitoring. This is the case for 4,4-DDE, dieldrin, heptachlor epoxide.

In December 2002, Bay Area Clean Water Agencies (BACWA) and RWQCB staff both submitted comments to SWRCB staff supporting several changes to the SIP. One common recommendation was that it be explicitly stated in the SIP that there could only be a finding of RP if background receiving water concentration for a given constituent were above a corresponding WQO and the maximum effluent concentration was also above the WQO. This would be a desirable change to help clarify this illogical situation where there is no linkage between a discharge and ambient concentrations, but a permit effluent limit is still required. SWRCB staff have indicated they will take these comments into consideration while revising the ambient background reasonable potential trigger.

In the interim, BACWA has also made the point in multiple permit petitions since June 2000 that RWQCB staff currently have the discretion under the SIP (specifically Section 1.2) to make the same determination of no RP based on a finding of insufficient and/or unrepresentative data. However, RWQCB staff have elected not to make that discretionary determination, and in accordance with SIP procedures, intend to establish effluent limits based on the WQO's (see Table 1) with compliance evaluated at the ML values. For this permit, staff intend to establish

IPBLs for the three compounds equivalent to the SIP MLs, as follows: 4,4-DDE, 0.05 ug/L; dieldrin, 0.01 ug/L; and heptachlor epoxide, 0.01 ug/L.

The District supports BACWA's position that in such circumstances data should be determined insufficient to determine RP (per SIP Section 1.2) and that there should instead be continued monitoring and recalculation of RP at such time as additional data are available and/or detection limits improve to a point where actual measurement and compliance with WQOs can truly be evaluated (instead of compliance with MLs). The District's second choice option would be inclusion of effluent goals in lieu of limits. This approach is consistent with SIP sections 1.2 and 2.2.2, and with SWRCB WQO 99-09 that upheld the RWQCB's action in establishing effluent goals for constituents where it was not possible to make definitive findings of RP.

6.0 PRIOR SOURCE CONTROL AND POLLUTION PREVENTION ACTIONS

6.1 General

The District is not required to have a Pretreatment Program, because its average dry weather flow is less than 5 MGD and there are no categorical dischargers or dischargers generating greater than 25,000 gallons per day in its service area. However, since 1992 the District has had an active Pollution Prevention (P2) Program, designed to reduce the loadings of targeted constituents to the treatment plant pollution prevention. In addition to general P2 activities, the Program targets it efforts toward automotive facilities, printers and photoprocessors, dental and medical facilities, laboratories, dry cleaners, and cooling tower operators. The District partners with the larger Central Marin Sanitation Agency (CMSA) on many P2 and public outreach activities. The District's unique facilities, including the treatment plant, marsh, bird watching areas, new laboratory/classroom facility, gardens, and greenhouse, make it an ideal place for student/group field trips. Events are held throughout the year for schools both in and outside its service area. The District also participates in region-wide pollution prevention activities through efforts coordinated by the Bay Area Pollution Prevention Group (BAPPG).

Information about the District's P2 and public outreach activities is available in the District's Annual Pollution Prevention Progress Reports submitted to the Regional Board each February .

The District conducts monitoring for all CTR constituents in the effluent and receiving water in accordance with the permit's self-monitoring program (SMP) and the August 6, 2001 RWQCB-mandated effluent and receiving water monitoring program. Monitoring of the plant influent and sludge is conducted per the SMP. Quarterly monitoring for selected pollutants of concern is conducted at four locations in the collection system as part of the Pollution Prevention Program

The District's reclamation programs, which include both the on-site pasture irrigation process and effluent delivered to the MMWD for further treatment and distribution as disinfected tertiary recycled water, result in a significant reduction in pollutant loadings to the Bay.

6.2 Interim Limit Constituents

Copper

The District's P2 Program address potential sources of copper primarily through regulation of automotive facilities (most of which are now zero-discharge) and of printers. The Program's general P2 and public outreach activities (such as discouraging use of copper-based root killers) may also result in reductions in copper loading. It is worth noting that the Marin Municipal Water District's (MMWD's) use of zinc orthophosphate as a water supply corrosion inhibitor (a practice which the District opposes) is driven by MMWD's need to comply with the Lead and Copper rule. MMWD has made the point that any reduction in corrosion control effectiveness, which it believes would occur if it were to switch to a non-zinc based inhibitor, could result in an increase in copper loadings to the treatment plant.

Recent tests conducted at the treatment plant indicate that levels of dissolved copper in the plant effluent are generally above 5 ug/L, which exceeds the calculated AMEL (4.25 ug/L) for total copper. Therefore it is difficult to envision a situation where the plant could consistently meet the AMEL based on the current CTR criteria.[4] Nevertheless, the District continues to explore possible methods to improve treatment plant performance with the goal of reducing effluent metals concentrations. Most of these efforts are aimed at improving solids removal through the treatment processes. Methods that have been evaluated by the District include chemical addition at the #2 biofilter effluent box, reconfiguration of biofilter recirculation flows to reduce hydraulic loading on the secondary clarifier, and pilot testing of continuously backwashing sand filters. The District's new (November 2002) Plant Superintendent is committed to continued efforts to optimize treatment process efficiency. RWQCB staff have indicated that the permit will contain a provision requiring the District to submit a report within four months of the permit adoption that identifies specific ongoing and planned projects to improve plant performance and reliability.

Mercury

The District's P2 Program addresses potential sources of mercury primarily through regulation of dental and medical facilities. These facilities, along with photoprocessors, are also targeted for silver.

The District periodically distributes BMPs to dental offices. The most recent BMP's to be circulated were those developed by the Bay Area Pollution Prevention Group (BAPPG). Dental facilities also received similar materials from professional organizations such as the California Dental Association (CDA).

In May 2001, the District submitted the *Final Mercury Reduction Report* pursuant to Provision E.4.d of it s NPDES Permit. As part of the District's efforts leading up to that report, District staff updated the list of dental facilities in the service area, and with assistance from CMSA, inspected all 23 dental offices, completing a two page survey during these inspections. The survey was designed to collect information on mercury disposal practices and knowledge of BMPs. Results of the survey were included in that Report.

[4] New site-specific objectives for copper and nickel are expected to be adopted within several years as a result of the Copper/Nickel study being conducted by BACWA. Based on the results of a similar effort in the South Bay, the revised objective for copper will likely be in the range of the District's current interim limit, and will therefore be attainable.

In September 2001, the District submitted a Mercury Pollution Prevention Plan pursuant to Permit Provision 4.c. The Mercury Pollution Plan called for quarterly sanitary sewer line monitoring, coordination of pollution prevention activities with other agencies and continuation of public education activities. The Plan also called for review of the BAPPG dental inspection checklist and re-inspection of dental facilities beginning in March 2004. These tasks are all reported on in this Annual Report.

The District, along with other Marin County public agencies and industry groups co-sponsored a mercury thermometer buy-back program. The District also participates in the North Bay Watershed Association (NBWA), which is developing a regional dental outreach program. This program, which is being developed with cooperation of the California Dental Association, will present a regional mercury pollution prevention message to dentists in the North Bay. The program has developed a one-page BMP fact sheet for dental systems and amalgam waste recyclers.

Mercury in wastewater is occurs primarily as (or is associated with) particulates. Therefore, any process improvements that enhance solids removal are also likely to reduce mercury concentrations in the final effluent. Projects to improve process performance and reliability will be described in the report to be submitted within four months of permit adoption.

Cyanide

It is not anticipated that any further pretreatment or pollution prevention programs would reduce cyanide in the treatment plant effluent because the cyanide influent concentrations are currently all nondetectable. Cyanide measured in the District's effluent appears to be the result of processes wherein cyanide (or cyanide complexes) are formed during the disinfection process, rather than the result of "pass through" from the influent stream (i.e. influent cyanide values are always at or below the detection limit). There is also evidence to suggest that, to some degree, cyanide measured in effluents may be an artifact of the analytical method used or the result of analytical interferences. In general, the chemistry of cyanide formation in POTW effluents is highly complex, involving both chemical and environmental factors, in ways that are still poorly understood, despite considerable research. In addition, it is not known whether the form(s) of cyanide that are measured in POTW effluents exhibit toxicity in the environment. A recently completed (late 2002) three-year investigation sponsored by the Water Environment Research Foundation (WERF), in which the Discharger and other Bay Area POTWs participated, described a number of possible mechanisms for cyanide formations, and shed new light on analytical issues, but found no process or operational measures that could be implemented to reduce observed cyanide levels in the effluent stream.

Historically, the dischargers in the San Francisco Bay Area used Standard Methods Part 4500-CN C and Part 4500-CN I for total and weak acid dissociable cyanide measurements, respectively, in the effluent samples. From these sampling results, it appears that there are certain unknown constituents in the effluent that interfere with the measured results. Recently, another discharger in San Francisco Bay Area, Central Contra Costa Sanitary District (CCCSD), switched to USEPA Method OI 1677, which is a continuous-flow, amperometric method. This method is known to be free from all the interferences common to Standard Methods Part 4500-CN C and 4500-CN I. Using this method, CCCSD discovered that sulfide, sulfite, and certain other reducing substances could cause false positive cyanide results.

For cyanide several technical questions exist which must be resolved before major control measures should be considered for cyanide control at POTWs. These technical questions involve (1) the establishment of a site-specific saltwater objective for cyanide in San Francisco Bay, (2) resolution of questions regarding potential artifacts (false positives) in chlorinated effluent cyanide analyses (i.e. WERF study), (3) improvement of analytical methodologies to measure levels in a wastewater matrix at or below the WQO of 1 ug/L, and (4) collection of background receiving water data at adequate detection limits (say ~0.1 ug/L) to allow calculation of effluent limits that would allow for dilution credit.

The outcome of ongoing or planned investigations may significantly impact the magnitude of final effluent limits in NPDES permits. The District is committed to participating in these regional efforts through BACWA and the RMP. Through BACWA, the District has participated in a regional discharger-funded effort to conduct a study for development of a site-specific objective applicable to the District's receiving water. The collaborative cyanide study plan was submitted to the Board on October 29, 2001 and work is on-going under that workplan. Annual status reports are submitted January 31st of each year to the RWQCB.

The District will also investigate the relationship between cyanide formation and chlorine dosage, as chlorine dosage is reduced under this Permit's new bacterial limits. These findings will be reported to the RWQCB in the annual status reports.

Bis(2-ethylhexyl)phthalate

Bis(2-ethylhexyl)phthalate (BEHP) has not been previously identified as a pollutant of concern for the District, and no specific P2 efforts have been directed toward this pollutant. BEHP is present in a large number of consumer and commercial/industrial products. This lack of "point sources" for BEHP makes it very difficult to control through normal P2 efforts. In addition, BEHP is often present in samples as a contaminant introduced during sampling or laboratory analysis. BEHP was detected in only one of the nine discharge season samples.

The District's initial efforts should focus on assuring that the detection of BEHP in the effluent is not a result of sample contamination. Since BEHP is used as a plasticizer (softener) for plastics, all plastic components in the sampling and sample handling system should be considered suspect, and eliminated to the extent possible. All analytical results should be scrutinized for presence of BEHP in laboratory blanks.

If detections of BEHP are deemed to be real, then additional effort should be put into identifying possible elevated concentrations of BEHP in the collection system. Analysis of the quarterly collection system samples could be expanded to include BEHP, as a possible means of determining if loadings from a particular location (which are used by the District to represent residential, commercial, mixed residential/commercial, and medical sectors) are disproportionate. The District should also review the P2 literature to compile a listing of potential sources (e.g. particular commercial activities) and closely track the P2 efforts of other POTWs.

Given the expected variability in results (including a high percentage of non-detectable results), it will be very difficult to identify sources of BEHP, or to determine if P2 efforts are effective.

A study plan to investigate laboratory sampling and analysis techniques for BEHP will be developed and submitted to the RWQCB by the District within 6 months after permit adoption,

and implemented upon approval by the RWQCB. A final report will be submitted by the date specified in the approved plan.

6.3 Compliance Uncertain Constituents

Dieldrin, 4,4-DDE, heptachlor epoxide

There are no known viable P2 measures for these long-banned legacy organochlorine pesticides, other than ongoing public education and outreach. Dieldrin is an insecticide and a degradation by-product of the pesticide aldrin. Aldrin has been used as a soil insecticide to control root worms, beetles, and termites. From 1950 to 1974 dieldrin was used as a pesticide to control insects on cotton, corn, and citrus crops. Dieldrin was also used to control locusts and mosquitoes, as a wood preservative, for termite control, as a veterinary sheep dip and for mothproofing of woolen products. EPA banned all uses of aldrin and dieldrin in 1974 except to control termites. In 1987, EPA banned all uses.

Dieldrin binds strongly to soil particles and hence is very resistant to leaching into groundwater. Volatilization is an important mechanism of loss from the soil. Its half-life is approximately 5 years. Dieldrin's chemical properties (low water solubility, high stability, and semi-volatility) favor its long-range transport. It has been detected even in arctic air, water and organisms. Possible exposure routes are through eating contaminated fish, shellfish, dairy products, fatty meats, and root crops grown in contaminated soil or water.

4,4-DDE is the primary degradation product of DDT. DDT was used as an insecticide from 1946 until being banned in 1972 except for public health emergencies. EPA cancelled all approved uses in 1988. Potential DDE sources, like dieldrin, are from air transport from application in other countries and volatilization from soils and waters due to past applications. Heptachlor epoxide is a breakdown product of the pesticide heptachlor, also banned in the early seventies.

Viable efforts to reduce these constituents in wastewater appear to be limited to education and outreach efforts designed to inform the public about household hazardous waste programs to properly dispose of any remaining 25+ year old containers of these legacy insecticides. These efforts will incorporated into the District's outreach/education program, either directly or through the other agencies that it partners with on P2 activities. Given that these pesticides were effectively banned by EPA in the seventies, the District is not aware /of any additional P2 activities that would be effective in further reducing effluent concentrations. Until analytical methodologies improve, it is not even possible to determine whether these constituents are actually present at levels of concern in the District's wastewater. For the same reason, it would also not be possible to evaluate the effectiveness of any potential P2 activities that might be undertaken.

6.4 Pollution Prevention and Treatment Conclusions

The District maintains an active Pollution Prevention Program, which seeks to leverage its efforts by partnering with other agencies and organizations. The resources committed to public outreach, and in particular to the elementary school education program are quite significant for a discharger of its size. The District is committed to continuing these efforts in the future. Although P2 programs can potentially reduce the levels of toxics in the overall environment, there are chemical and physical limitations on how low the reductions will translate to in the effluent. In terms of immediate compliance, source control would provide no possibility of

achieving short-term compliance with the projected effluent limits. As a result, it must be judged that additional source control activities do not provide a feasible solution for immediate compliance with projected limits.

The District's efforts toward improving treatment process efficiency have recently been energized through the efforts of a new plant superintendent. Although it is not likely that the treatment plant could ever meet the calculated final limits for copper or cyanide, the objectives for copper (and possibly cyanide) are likely to change during the next permit cycle as a result of site-specific studies, making future compliance much more likely. For mercury, treatment process improvements and the District's reclamation programs will likely ensure compliance with future mass load allocations, if proper the credits are applied for wastewater not discharged to the Bay. With regard to dieldrin, 4,4-DDE, heptachlor epoxide, there is no evidence in the wastewater engineering literature to indicate that secondary treatment alone can achieve the effluent concentrations that would be needed to comply with effluent limits based on the current objectives, assuming these compounds were present in the influent stream.

8.0 INFEASIBLITY STUDY CONCLUSIONS

Table 3 lists the constituents determined by the RWQCB's final RPA to have RP, the calculated final effluent limits (AMELs only), an evaluation as to whether compliance is feasible, and interim limits to be included in the reissued NPDES permit. For constituents with only receiving water based RP (and all plant effluent samples non-detect), the interim limits shown are equal to the SIP MLs.

Table 3. Summary and Proposed Interim Limits

Constituent	Calculated AMEL (ug/L)	Compliance Feasible?	Interim Daily Max Limit (ug/L)	Interim Monthly Avg Limit (ug/L)
Copper	3.4	No	17[2]	
Mercury	0.022	No		0.087[3]
Cyanide	0.48	No	25[3]	
Bis(2-thylhexyl)phthalate	5.9[1]	No	16[4]	
Hexavalent Chromium	8.5	Yes		
Nickel	11	Yes		
Lead	4.6	Yes		
4,4-DDE	0.00059[1]	No	0.05	
Dieldrin	0.00014[1]	No	0.01	
Heptachlor Epoxide	0.00011[1]	No	0.01	

Notes:
1. Limit = WQO
2. Current interim limit
3. "Pooled" performance limit. (CN limit may be revised prior to permit adoption with results from more recent analysis).
4. Equivalent to maximum effluent concentration (MEC) in RPA dataset
5. SIP ML

Attachment 1

Reasonable Potential Analysis Results for Priority Pollutants

Attachment 1
Las Gallinas Valley Sanitary District
Reasonable Potential Analysis (RPA)
Results for Priority Pollutants

Beginning			Step 2	Step 3					Step 4	Step 2	Step 3		Step 5			Step 6	Steps 7 & 8	Final Result	
	Constituent name	C (µg/L) Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available (Y/N)?	Are all data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Maximum Pollutant Concentration from (MEC= detected max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C 1. If MEC> or =C, effluent limitation is required; 2. If MEC<C, go to Step 5	B Available (Y/N)?	Are all B data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant B detected max conc (ug/L)	If all B is ND, is MDL>C?	B vs. C If B>C, effluent limitation is required	7) Review other information in the SIP page 4. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements.	RPA Result	Reason
1	Antimony	4,300	N				No effluent data			N					No detected value of B, Step		Ud	no effluent data & no B
2	Arsenic [b]	36	Y	N		1		1	MEC<C, go to Step 5	Y	N		3.92		B<C, Step 7		No	MEC<C & B<C
3	Beryllium	No Criteria	N				No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
4	Cadmium [b]	1.52	Y	N		0.6		0.6	MEC<C, go to Step 5	Y	N		0.1414		B<C, Step 7		No	MEC<C & B<C
5a	Chromium (III)	280.60	N				No effluent data			N					No detected value of B, Step		Ud	no effluent data & no B
5b	Chromium (VI) [b]	11.00	Y	N		2.2		2.2	MEC<C, go to Step 5	Y	N		40.7		B>C, Effluent Limit Required		Yes	B>C
6	Copper (303d listed) [c]	5.54	Y	N		25		25	MEC>=C, Effluent Limits Required	Y	N		14.3		B>C, Effluent Limit Required		Yes	MEC>C
7	Lead [b]	5.11	Y	N		2		2	MEC<C, go to Step 5	Y	N		6.46		B>C, Effluent Limit Required		Yes	B>C
8	Mercury (303d listed) [b]	0.025	Y	N		0.077		0.077	MEC>=C, Effluent Limits Required	Y	N		0.0881		B>C, Effluent Limit Required		Yes	MEC>C
9	Nickel [b]	12.55	Y	N		8.2		8.2	MEC<C, go to Step 5	Y	N		30		B>C, Effluent Limit Required		Yes	B>C
10	Selenium (303d listed) [b]	5.00	Y	N		1.5		1.5	MEC<C, go to Step 5	Y	N		0.33		B<C, Step 7		No	MEC<C & B<C
11	Silver [b]	2.30	Y	N		1.2		1.2	MEC<C, go to Step 5	Y	N		0.059		B<C, Step 7		No	MEC<C & B<C
12	Thallium	6.30	N				No effluent data			N					No detected value of B, Step		Ud	no effluent data & no B
13	Zinc [b]	124.70	Y	N		110		110	MEC<C, go to Step 5	Y	N		35		B<C, Step 7		No	MEC<C & B<C
14	Cyanide [b]	1.00	Y	N		10		10	MEC>=C, Effluent Limits Required	N					No detected value of B, Step		Yes	MEC>C
15	Asbestos	No Criteria	N				No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
16	2,3,7,8-TCDD (303d listed	0.000000014	Y	Y	0.00000269		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		Yes	Staff BPJ
17	Acrolein	780	Y	Y	5		All ND, MDL<C, MEC=MDL	5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
18	Acrylonitrile	0.66	Y	Y	2		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		No	MDL>C & No B
19	Benzene	71	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
20	Bromoform	360	Y	N		2		2	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
21	Carbon Tetrachloride	4.4	Y	N		1		1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
22	Chlorobenzene	21,000	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
23	Chlorodibromomethane	34	Y	N		21		21	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
24	Chloroethane	No Criteria	Y	Y	0.5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
25	2-Chloroethylvinyl ether	No Criteria	Y	Y	0.5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
26	Chloroform	No Criteria	Y	N		19	No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
27	Dichlorobromomethane	46	Y	N		28		28	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
28	1,1-Dichloroethane	No Criteria	Y	Y	0.5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
29	1,2-Dichloroethane	99	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
30	1,1-Dichloroethylene	3.2	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
31	1,2-Dichloropropane	39	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
32	1,3-Dichloropropylene	1,700	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
33	Ethylbenzene	29,000	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
34	Methyl Bromide	4,000	Y	N		0.9		0.9	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
35	Methyl Chloride	No Criteria	Y	N		2.3	No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
36	Methylene Chloride	1,600	Y	Y	2		All ND, MDL<C, MEC=MDL	2	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
37	1,1,2,2-Tetrachloroethane	11	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
38	Tetrachloroethylene	8.85	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
39	Toluene	200,000	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
40	1,2-Trans-Dichloroethylen	140,000	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
41	1,1,1-Trichloroethane	No Criteria	Y	Y	0.5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
42	1,1,2-Trichloroethane	42	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
43	Trichloroethylene	81	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
44	Vinyl Chloride	525	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
45	2-Chlorophenol	400	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
46	2,4-Dichlorophenol	790	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
47	2,4-Dimethylphenol	2,300	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
48	2-Methyl- 4,6-Dinitrophenc	765	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
49	2,4-Dinitrophenol	14,000	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
50	2-Nitrophenol	No Criteria	Y	Y	0.5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
51	4-Nitrophenol	No Criteria	Y	Y	0.5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
52	3-Methyl 4-Chlorophenol	No Criteria	Y	Y	0.5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
53	Pentachlorophenol	7.90	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
54	Phenol	4,600,000	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
55	2,4,6-Trichlorophenol	6.50	Y	Y	5		All ND, MDL<C, MEC=MDL	5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
56	Acenaphthene	2,700	Y	Y	0.2		All ND, MDL<C, MEC=MDL	0.2	MEC<C, go to Step 5	Y	N		0.0093		B<C, Step 7		No	MEC<C & B<C
57	Acenaphthylene	No Criteria	Y	Y	0.2		No Criteria	No Criteria	No Criteria	Y	N		0.0007		No Criteria	No Criteria	Uo	No Criteria
58	Anthracene	110,000	Y	Y	0.3		All ND, MDL<C, MEC=MDL	0.3	MEC<C, go to Step 5	Y	N		0.01		B<C, Step 7		No	MEC<C & B<C
59	Benzidine	0.00054	Y	Y	0.3		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		No	MDL>C & No B
60	Benzo(a)Anthracene	0.049	Y	Y	0.3		All ND, MinDL>C, Go to Step 5,			Y	N		0.0064		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
61	Benzo(a)Pyrene	0.049	Y	Y	0.3		All ND, MinDL>C, Go to Step 5,			Y	N		0.0094		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
62	Benzo(b)Fluoranthene	0.049	Y	Y	0.3		All ND, MinDL>C, Go to Step 5,			Y	N		0.018		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
63	Benzo(ghi)Perylene	No Criteria	Y	Y	0.1		No Criteria	No Criteria	No Criteria	Y	N		0.009		No Criteria	No Criteria	Uo	No Criteria
64	Benzo(k)Fluoranthene	0.049	Y	Y	0.3		All ND, MinDL>C, Go to Step 5,			Y	N		0.0051		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
65	Bis(2-Chloroethoxy)Metha	No Criteria	Y	Y	5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
66	Bis(2-Chloroethyl)Ether	1.40	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
67	Bis(2-Chloroisopropyl)Eth	170,000	Y	Y	2		All ND, MDL<C, MEC=MDL	2	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
68	Bis(2-Ethylhexyl)Phthalate	5.90	Y	N		16		16	MEC>=C, Effluent Limits Required	N					No detected value of B, Step		Yes	MEC>C
69	4-Bromophenyl Phenyl Eth	No Criteria	Y	Y	5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
70	Butylbenzyl Phthalate	5,200	Y	Y	5		All ND, MDL<C, MEC=MDL	5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
71	2-Chloronaphthalene	4,300	Y	Y	5		All ND, MDL<C, MEC=MDL	5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
72	4-Chlorophenyl Phenyl Eth	No Criteria	Y	Y	5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
73	Chrysene	0.049	Y	Y	0.3		All ND, MinDL>C, Go to Step 5,			Y	N		0.0083		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
74	Dibenzo(a,h)Anthracene	0.049	Y	Y	0.1		All ND, MinDL>C, Go to Step 5,			Y	N		0.0026		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
75	1,2-Dichlorobenzene	17,000	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
76	1,3-Dichlorobenzene	2,600	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
77	1,4-Dichlorobenzene	2,600	Y	Y	0.5		All ND, MDL<C, MEC=MDL	0.5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND

12/3/2003

Attachment 1
Las Gallinas Valley Sanitary District
Reasonable Potential Analysis (RPA)
Results for Priority Pollutants

Beginning			Step 2	Step 3				Step 4	Step 2	Step 3		Step 5		Step 6	Steps 7 & 8	Final Result	
	Constituent name	C (µg/L) Lowest (most stringent) Criteria (Enter "No Criteria" for no criteria)	Effluent Data Available (Y/N)?	Are all data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant effluent detected max conc (ug/L)	If all data points are ND and MinDL>C, interim monitoring is required	Maximum Pollutant Concentration from (MEC= deteted max value; if all ND & MDL<C then MEC = MDL)	MEC vs. C 1. If MEC> or =C, effluent limitation is required; 2. If MEC<C, go to Step 5	B Available (Y/N)?	Are all B data points non-detects (Y/N)?	If all data points ND Enter the min detection limit (MDL) (ug/L)	Enter the pollutant B detected max conc (ug/L)	If all B is ND, is MDL>C?	B vs. C If B>C, effluent limitation is required	7) Review other information in the SIP page 4. If information is unavailable or insufficient: 8) the RWQCB shall establish interim monitoring requirements.	RPA Result	Reason
78	3,3 Dichlorobenzidine	0.077	Y	Y	5		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		No	MDL>C & No B
79	Diethyl Phthalate	120,000	Y	Y	2		All ND, MDL<C, MEC=MDL	2	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
80	Dimethyl Phthalate	2,900,000	Y	Y	2		All ND, MDL<C, MEC=MDL	2	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
81	Di-n-Butyl Phthalate	12,000	Y	Y	5		All ND, MDL<C, MEC=MDL	5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
82	2,4-Dinitrotoluene	9.10	Y	Y	5		All ND, MDL<C, MEC=MDL	5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
83	2,6-Dinitrotoluene	No Criteria	Y	Y	5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
84	Di-n-Octyl Phthalate	No Criteria	Y	Y	5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
85	1,2-Diphenylhydrazine	0.54	Y	Y	1		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		No	MDL>C & No B
86	Fluoranthene	370	Y	Y	0.05		All ND, MDL<C, MEC=MDL	0.05	MEC<C, go to Step 5	Y	N		0.022		B<C, Step 7		No	MEC<C & B<C
87	Fluorene	14,000	Y	Y	0.05		All ND, MDL<C, MEC=MDL	0.05	MEC<C, go to Step 5	Y	N		0.0021		B<C, Step 7		No	MEC<C & B<C
88	Hexachlorobenzene	0.00077	Y	Y	1		All ND, MinDL>C, Go to Step 5,			Y	N		0.000073		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
89	Hexachlorobutadiene	50	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
90	Hexachlorocyclopentadien	17,000	Y	Y	5		All ND, MDL<C, MEC=MDL	5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
91	Hexachloroethane	8.90	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
92	Indeno(1,2,3-cd)Pyrene	0.049	Y	Y	0.05		All ND, MinDL>C, Go to Step 5,			Y	N		0.012		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
93	Isophorone	600	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
94	Naphthalene	No Criteria	Y	Y	0.2		No Criteria	No Criteria	No Criteria	Y	N		0.0016		No Criteria	No Criteria	Uo	No Criteria
95	Nitrobenzene	1,900	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
96	N-Nitrosodimethylamine	8.10	Y	Y	5		All ND, MDL<C, MEC=MDL	5	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
97	N-Nitrosodi-n-Propylamine	1.40	Y	Y	5		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		No	MDL>C & No B
98	N-Nitrosodiphenylamine	16	Y	Y	1		All ND, MDL<C, MEC=MDL	1	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
99	Phenanthrene	No Criteria	Y	Y	0.05		No Criteria	No Criteria	No Criteria	Y	N		0.0078		No Criteria	No Criteria	Uo	No Criteria
100	Pyrene	11,000	Y	Y	0.05		All ND, MDL<C, MEC=MDL	0.05	MEC<C, go to Step 5	Y	N		0.03		B<C, Step 7		No	MEC<C & B<C
101	1,2,4-Trichlorobenzene	No Criteria	Y	Y	5		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
102	Aldrin	0.00014	Y	Y	0.005		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		No	MDL>C & No B
103	alpha-BHC	0.013	Y	Y	0.01		All ND, MDL<C, MEC=MDL	0.01	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
104	beta-BHC	0.046	Y	Y	0.005		All ND, MDL<C, MEC=MDL	0.005	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
105	gamma-BHC	0.063	Y	Y	0.01		All ND, MDL<C, MEC=MDL	0.01	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
106	delta-BHC	No Criteria	Y	Y	0.005		No Criteria	No Criteria	No Criteria	N					No Criteria	No Criteria	Uo	No Criteria
107	Chlordane (303d listed)	0.00059	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.000344		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
108	4,4'-DDT (303d listed)	0.00059	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.000416		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
109	4,4'-DDE (linked to DDT)	0.00059	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.001159		B>C, Effluent Limit Required		Yes	B>C
110	4,4'-DDD	0.00084	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.00067		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
111	Dieldrin (303d listed)	0.00014	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.000237		B>C, Effluent Limit Required		Yes	B>C
112	alpha-Endosulfan	0.0087	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.000017		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
113	beta-Endolsulfan	0.0087	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.000059		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
114	Endosulfan Sulfate	240	Y	Y	0.01		All ND, MDL<C, MEC=MDL	0.01	MEC<C, go to Step 5	Y	N		0.0001433		B<C, Step 7		No	MEC<C & B<C
115	Endrin	0.0023	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.000073		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
116	Endrin Aldehyde	0.81	Y	Y	0.01		All ND, MDL<C, MEC=MDL	0.01	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND
117	Heptachlor	0.00021	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.000017		B<C, Step 7		No	UD; effluent data ND, MDL>C & B<C
118	Heptachlor Epoxide	0.00011	Y	Y	0.01		All ND, MinDL>C, Go to Step 5,			Y	N		0.000121		B>C, Effluent Limit Required		Yes	B>C
119-125	PCBs sum (2)	0.00017	Y	Y	0.1		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		No	MDL>C & No B
126	Toxaphene	0.00020	Y	Y	0.1		All ND, MinDL>C, Go to Step 5,			N					No detected value of B, Step		No	MDL>C & No B
	Tributylin	0.01000	Y	N		0.006		0.006	MEC<C, go to Step 5	N					No detected value of B, Step		No	Ud;MEC<C & B is ND

a. The most stringent of salt and fresh water criteria were selected for this analysis.

b. According to Table 1 of Section (b)(1) of CTR (40CFR 131.38), those criteria should use Basin Plan objectives; criteria for Se and CN are specified by the NTR.

c. Criteria for copper is taken from CTR. CTR criteria for copper is expressed as dissolved metals. The copper criter in the table is adjusted by dividing a factor of 0.83 to convert the dissovled to total metal concatration.
The freshwater criteria for Selenium is taken from NTR.

d. Acronyms in the "Final Result" column: Ud: Cannot determine reasonable potential due to the absence of data, or because Minimum DL is greater than water quality objective or CTR criteria
IM: Interim monitoring is required

12/3/2003

Attachment 2

Calculation of Final Water Quality-Based Effluent Limits

Attachment 2
Las Gallinas Valley Sanitary District
Calculation of Final WQBELs

PRIORITY POLLUTANTS	Chromium VI	Copper	Lead	Mercury	Nickel	Cyanide	Bis(2-ethylhexyl)Phthalate	4,4'-DDE	Dieldrin	Heptachlor Epoxide
Basis and Criteria type	BP SW (4-d, 1-hr avg)	CTR SW	BP SW (4-d, 1-hr avg)	BP SW (4-d, 1-hr avg)	BP SW (24-hr, Max)	CTR SW	CTR HH	CTR HH	CTR HH	CTR HH
Lowest WQO	11.00	5.54	5.11	0.025	12.55	1.00	5.90	0.00059	0.00014	0.00011
Translators		MCreek			MCreek					
Dilution Factor (D) (if applicable)	0	0	0	0	0	0	0	0	0	0
No. of samples per month	4	4	4	4	4	4	4	4	4	4
Aquatic life criteria analysis required? (Y/N)	Y	Y	Y	Y	Y	Y	N	N	N	Y
HH criteria analysis required? (Y/N)	N	N	N	Y	Y	Y	Y	Y	Y	Y
Applicable Acute WQO	16	5.78	131.02	2.1	169	1				0.053
Applicable Chronic WQO	11	5.54	5.11	0.025	12.55	1				0.0036
HH criteria				0.051	4600	220000	5.9	0.00059	0.00014	0.00011
Background (max conc for Aq Life calc)	40.7	14.3	6.46	0.0881	30					
Background (avg conc for HH calc)				0.02390	9.32					
Is the pollutant Bioaccumulative(Y/N)? (e.g., Hg	N	N	N	Y	N	N	N	Y	Y	Y
ECA acute	16	5.78	131.02	2.1	169	1				0.053
ECA chronic	11	5.54	5.11	0.025	12.55	1				0.0036
ECA HH				0.051	4600	220000	5.9	0.00059	0.00014	0.00011
No. of data points <10 or at least 80% of data reported non detect? (Y/N)	N	N	N	N	N	N	Y	Y	Y	Y
Avg of effluent data points	0.890	10.333	0.893	0.0352	4.440	3.56				
Std Dev of effluent data points	0.471	4.294	0.276	0.0124	1.749	2.36				
CV calculated	0.53	0.42	0.31	0.35	0.39	0.66	N/A	N/A	N/A	N/A
CV (Selected) - Final	0.53	0.42	0.31	0.35	0.39	0.66	0.60	0.60	0.60	0.60
ECA acute mult99	0.36	0.43	0.52	0.48	0.44	0.30				0.32
ECA chronic mult99	0.56	0.63	0.71	0.68	0.65	0.50				0.53
LTA acute	5.70	2.47	67.92	1.01	75.08	0.30				0.02
LTA chronic	6.21	3.51	3.62	0.02	8.13	0.50				0.00
minimum of LTAs	5.70	2.47	3.62	0.02	8.13	0.30				0.00
AMEL mult95	1.48	1.37	1.27	1.31	1.35	1.61	1.55	1.55	1.55	1.55
MDEL mult99	2.81	2.34	1.93	2.09	2.25	3.39	3.11	3.11	3.11	3.11
AMEL (aq life)	8.45	3.40	4.60	0.02	10.99	0.48				0.00
MDEL(aq life)	16.00	5.78	6.98	0.04	18.29	1.00				0.01
MDEL/AMEL Multiplier	1.89	1.70	1.52	1.59	1.66	2.10	2.01	2.01	2.01	2.01
AMEL (human hlth)				0.051	4600	220000	6	0.00059	0.00014	0.00011
MDEL (human hlth)				0.081	7656	462060	12	0.00118	0.00028	0.00022
minimum of AMEL for Aq. life vs HH	8.45	3.40	4.60	0.02	10.99	0.48	5.90	0.00059	0.00014	0.00011
minimum of MDEL for Aq. Life vs HH	16.00	5.78	6.98	0.035	18.29	1.00	11.84	0.0012	0.00028	0.00022
Final limit - AMEL	8.45	3.40	4.60	0.022	10.99	0.48	5.90	0.00059	0.00014	0.00011
Final limit - MDEL	16.00	5.78	6.98	0.035	18.29	1.00	11.84	0.00118	0.00028	0.00022
Max Effl Conc (MEC)	2.2	25.0	2.00	0.077	8.2	10	16	<0.01	<0.01	<0.01
Interim Limits	N/A	17	N/A	0.087	N/A	12	16	0.05	0.01	0.01

Attachment 3

Calculation of Mercury Mass Trigger

Attachment 3
Las Gallinas Valley Sanitary District
Calculation of Mercury Mass Trigger

				Mercury Mass trigger		
Date	Hg Monthly effluent average conc. (ug/L)	Total effluent flow (mgd)- for mass limit calculation	Flow to Miller Creek[1] (mgd) - for mass tigger calculation	montly Hg mass load (kg/month)	12-month MA Hg mass load	LN (12-month MA mass load)
Nov-98	0.035	2.655	0	0.00000		
Dec-98	0.03	2.633	2.633	0.00909		
Jan-99	0.05	3.014	3.014	0.01735		
Feb-99	0.03	5.011	5.011	0.01730		
Mar-99	0.029	3.793	3.793	0.01266		
Apr-99	0.023	3.635	3.635	0.00962		
May-99	0.037	2.843	2.843	0.01211		
Jun-99	0.024	2.503	0	0.00000		
Jul-99	0.032	2.434	0	0.00000		
Aug-99	0.032	2.44	0	0.00000		
Sep-99	0.022	2.304	0	0.00000		
Oct-99	0.029	2.391	0	0.00000	0.00651	-5.0343
Nov-99	0.029	2.468	0	0.00000	0.00651	-5.0343
Dec-99	0.034	2.329	2.329	0.00911	0.00651	-5.0340
Jan-00	0.036	3.388	3.388	0.01404	0.00624	-5.0772
Feb-00	0.031	5.474	5.474	0.01953	0.00642	-5.0479
Mar-00	0.028	3.776	3.776	0.01217	0.00638	-5.0543
Apr-00	0.045	3.282	3.282	0.01700	0.00700	-4.9623
May-00	0.042	2.865	2.865	0.01385	0.00714	-4.9418
Jun-00	0.05	2.404	0	0.00000	0.00714	-4.9418
Jul-00	0.03	2.335	0	0.00000	0.00714	-4.9418
Aug-00	0.024	2.276	0	0.00000	0.00714	-4.9418
Sep-00	0.032	2.235	0	0.00000	0.00714	-4.9418
Oct-00	0.035	2.345	0	0.00000	0.00714	-4.9418
Nov-00	0.027	2.364	0	0.00000	0.00714	-4.9418
Dec-00	0.027	2.434	2.43	0.00755	0.00701	-4.9602
Jan-01	0.021	3.441	3.44	0.00831	0.00653	-5.0306
Feb-01	0.034	4.557	4.557	0.01783	0.00639	-5.0525
Mar-01	0.023	3.438	3.438	0.00910	0.00614	-5.0933
Apr-01	0.027	2.427	2.427	0.00754	0.00535	-5.2308
May-01	0.031	2.32	2.32	0.00828	0.00489	-5.3216
Jun-01	0.027	2.198	0	0.00000	0.00489	-5.3216
Jul-01	0.037	2.12	0	0.00000	0.00489	-5.3216
Aug-01	0.04	2.074	0	0.00000	0.00489	-5.3216
Sep-01	0.03	2	0	0.00000	0.00489	-5.3216
Oct-01	0.031	2.04	0	0.00000	0.00489	-5.3216
Nov-01	0.033	2.879	0	0.000	0.00489	-5.3216
Dec-01	0.037	5.492	5.492	0.023	0.00620	-5.0824
Jan-02	0.077	3.905	3.905	0.035	0.00840	-4.7800
Feb-02	0.046	3.157	3.16	0.017	0.00830	-4.7910
Mar-02	0.031	2.966	2.966	0.011	0.00843	-4.7762
Apr-02	0.068	2.491	2.49	0.019	0.00942	-4.6646
May-02	0.031	2.324	0	0.000	0.00873	-4.7406
Jun-02	0.034	2.413	0	0.000	0.00873	-4.7406
Jul-02	0.028	2.156	0	0.000	0.00873	-4.7406
Aug-02	0.025	2.423	0	0.000	0.00873	-4.7406
Sep-02	0.024	2.076	0	0.000	0.00873	-4.7406
Oct-02	0.023	2.01	0	0.000	0.00873	-4.7406
Nov-02	0.018	2.299	0	0.000	0.00873	-4.7406
Dec-02	0.039	2.35	2.35	0.011	0.00766	-4.8713
					Mean	-4.9899
					Std. Dev	0.2036
					Exp (Mean+3.Std. Dev)	0.013
						Mass Trigger

non transformed (for comparison)

avg	0.00694
st dev	0.00137
mean+3sd	0.01104

[1] "0" values represent reclaim season; therefore there is no discharge to Miller Creek.

Attachment 4

Effluent Monitoring Data
(November1998 – December 2002)

Attachment 4

LAS GALLINAS VALLEY SANITARY DISTRICT EFFLUENT MONITORING DATA (NOV 1998- DEC 2002)

# in CTR	CONSTITUENT	Nov-98	Dec-98	Jan-99	Feb-99	Mar-99	Apr-99	May-99	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Nov-00	Dec-00
2	Arsenic	< 2	< 2	0	0	< 2	0	0	0	< 2	0	0	< 2	0	0	0	< 2
4	Cadmium		< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
5b	Chromium		< 1	< 1	< 1.5	< 1	< 1.5	1	< 1	< 1	< 1.5	1.5	1	< 1	1	1	< 1
6	Copper	5	7	9	9	8	7	7	7	7	9	7	7	10	13	9	9
7	Lead		< 2.5	< 2	< 2	< 2.5	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	2
8	Mercury	0.035	0.03	0.05	0.03	0.029	0.023	0.037	0.029	0.034	0.036	0.031	0.028	0.045	0.042	0.027	0.027
9	Nickel		< 4.5	4.6	6	3.5	4	6.6	6	< 3	< 5	4	5	4	< 3	< 3	4
10	Selenium		1.5			< 1	0	0	0	< 1			1	0		0	< 1
11	Silver	0.6	0.8			0.9	0	0	0	< 0.5			1	0		0	< 0.5
13	Zinc	70	55	80	70	55	50	66	80	85	110	70	60	80	110	80	90
14	Cyanide		4	5	6	3	3	9	4	< 3	5	5	< 3	< 5	< 3	6	< 3
16	2,3,7,8-TCDD (Dioxin)		0			0				< 0.0000038			0				< 0.00000269
17	Acrolein		0			0				0			0				
18	Acrylonitrile		0			0				0			0				
19	Benzene		< 0.5			< 0.5				< 0.5			< 0.5				< 0.5
20	Bromoform		2			< 0.5				< 0.5			< 0.5				< 0.5
21	Carbon Tetrachloride		< 0.5			< 0.5				< 0.5			< 0.5				< 0.5
22	Chlorobenzene		< 0.5			< 0.5				< 0.5			< 0.5				< 0.5
23	Chlordibromomethane		21			6.9				7.1			< 0.5			0	2.8
24	Chloroethane		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
25	2-Chloroethylvinyl Ether		< 1			< 1				< 0.5			< 1			<	1
26	Chloroform		19			17				17			6.2			0	11
27	Dichlorobromomethane		28			15				15			3			0	8.9
28	1,1-Dichloroethane		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
29	1,2-Dichloroethane		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
30	1,1-Dichloroethylene		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
31	1,2-Dichloropropane		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
32	1,3-Dichloropropylene		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
33	Ethylbenzene		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
34	Methyl Bromide		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
35	Methyl Chloride		< 0.5			< 0.5				2.3			< 0.5			0	0.5
36	Methylene Chloride		< 3			< 3				< 3			< 3			<	3
37	1,1,2,2-Tetrachloroethane		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
38	Tetrachloroethylene		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
39	Toluene		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
40	1,2-Trans-Dichloroethylene		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
41	1,1,1-Trichloroethane		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
42	1,1,2-Trichloroethane		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
43	Trichloroethylene		< 1.5			< 0.5				< 0.5			< 0.5			<	0.5
44	Vinyl Chloride		< 0.5			< 0.5				< 0.5			< 0.5			<	0.5
45	2-Chlorophenol		< 5			< 5				< 5			< 5			<	5
46	2,4-Dichlorophenol		< 5			< 5				< 5			< 5			<	5
47	2,4-Dimethylphenol		< 5			< 10				< 5			< 5			<	5
48	2-Methyl-4,6-Dinitrophenol		< 10			< 10				< 10			< 10			<	10
49	2,4-Dinitrophenol		< 10			< 5				< 10			< 10			<	10
50	2-Nitrophenol		< 5			< 5				< 5			< 5			<	5
51	4-Nitrophenol		< 5			< 5				< 10			< 5			<	10
52	3-Methyl-4-Chlorophenol		< 5			< 5				< 5			< 5			<	5
53	Pentachlorophenol		< 5			< 5				< 5			< 5			<	5
54	Phenol		< 5			< 5				< 5			< 5			<	5
55	2,4,6-Trichlorophenol		< 5			< 5				< 5			< 5			<	5
56	Acenaphthene		< 0.3			< 0.3				< 0.3			< 0.3			<	0.3
57	Acenephthylene		< 0.3			< 0.3				< 0.3			< 0.3			<	0.3
58	Anthracene		< 0.3			< 0.3				< 0.3			< 0.3			<	0.3
59	Benzidine		< 0.3			< 0.3				< 20			< 20			<	0.3
60	Benzo(a)Anthracene		< 0.3			< 0.3				< 0.3			< 0.3			<	0.3
61	Benzo(a)Pyrene		< 0.3			< 0.3				< 0.3			< 0.3			<	0.3
62	Benzo(b)Fluoranthene		< 0.3			< 0.3				< 0.3			< 0.3			<	0.3
63	Benzo(ghi)Perylene		< 0.3			< 0.3				< 0.3			< 0.3			<	0.3
64	Benzo(k)Fluoranthene		< 0.3			< 0.3				< 0.3			< 0.3			<	0.3
65	Bis(2-Chloroethoxy)Methane		< 5			< 5				< 5			< 5			<	5

Attachment 4

LAS GALLINAS VALLEY SANITARY DISTRICT EFFLUENT MONITORING DATA (NOV 1998- DEC 2002)

# in CTR	CONSTITUENT	Nov-98	Dec-98	Jan-99	Feb-99	Mar-99	Apr-99	May-99	Nov-99	Dec-99	Jan-00	Feb-00	Mar-00	Apr-00	May-00	Nov-00	Dec-00
66	Bis(2-Chloroethyl)Ether		< 5			< 5				< 5			< 5				< 5
67	Bis(2-Chloroisopropyl)Ether		< 10			< 5				< 10			< 10				< 10
68	Bis(2-Ethylhexyl)Phthalate		< 25			< 25				< 25			< 25				< 25
69	4-Bromophenyl Phenyl Ether		< 5			< 5				< 5			< 5				< 5
70	Butylbenzyl Phthalate		< 5			< 5				< 5			< 5				< 5
71	2-Chloronaphthalene		< 5			< 5				< 5			< 5				< 5
72	4-Chlorophenyl Phenyl Ether		< 5			< 5				< 5			< 5				< 5
73	Chrysene		< 0.3			< 0.3				< 0.3			< 0.3				< 0.3
74	Dibenzo(a,h)Anthracene		< 0.3			< 0.3				< 0.3			< 0.3				< 0.3
75	1,2 Dichlorobenzene		< 0.5			< 0.5				< 0.5			< 0.5				< 0.5
76	1,3 Dichlorobenzene		< 0.5			< 0.5				< 0.5			< 0.5				< 0.5
77	1,4 Dichlorobenzene		< 0.5			< 0.5				< 0.5			< 0.5				< 0.5
78	3,31-Dichlorobenzidine		< 25			< 25				< 25			< 25				< 25
79	Diethyl Phthalate		< 5			< 5				< 5			< 5				< 5
80	Dimethyl Phthalate		< 5			< 5				< 5			< 5				< 5
81	Di-n-Butyl Phthalate		< 25			< 25				< 25			< 25				< 25
82	2,4-Dinitrotoluene		< 5			< 5				< 5			< 5				< 5
83	2,6-Dinitrotoluene		< 5			< 5				< 5			< 5				< 5
84	Di-n-Octyl Phthalate		< 5			< 5				< 5			< 5				< 5
85	1,2-Diphenylhydrazine		< 5			< 5				< 5			< 5				< 25
86	Fluoranthene		< 0.3			< 0.3				< 0.3			< 0.3				< 0.3
87	Fluorene		< 0.3			< 0.3				< 0.3			< 0.3				< 0.3
88	Hexachlorobenzene		< 5			< 5				< 5			< 5				< 5
89	Hexachlorobutadiene		< 25			< 25				< 25			< 25				< 25
90	Hexachlorocyclopentadiene		< 25			< 25				< 25			< 25				< 25
91	Hexachloroethane		< 5			< 5				< 5			< 5				< 2
92	Indeno(1,2,3-cd) Pyrene		< 0.3			< 0.3				< 0.3			< 0.3				< 0.3
93	Isophorone		< 5			< 25				< 25			< 25				< 25
94	naphthalene		< 0.3			< 0.3				< 0.3			< 0.3				< 0.3
95	Nitrobenzene		< 5			< 5				< 5			< 5				< 5
96	N-Nitrosodimethylamine		< 25			< 25				< 25			< 25				< 25
97	N-Nitrosodi-n-Propylamine		< 5			< 5				< 5			< 5				< 5
98	N-Nitrosodiphenylamine		< 5			< 5				< 5			< 5				< 5
99	Phenanthrene		< 0.3			< 0.3				< 0.3			< 0.3				< 0.3
100	Pyrene		< 0.3			< 0.3				< 0.3			< 0.3				< 0.3
101	1,2,4-Trichlorobenzene		< 10			< 10				< 10			< 10				< 10
102	Aldrin		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
103	alpha-BHC		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
104	beta-BHC		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
105	gamma-BHC		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
106	delta-BHC		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
107	Chlordane		< 0.01			< 0.01				< 0.01			< 0.01				< 0.02
108	4,4-DDT		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
109	4,4-DDE		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
110	4,4-DDD		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
111	Dieldrin		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
112	alpha-Endosulfan		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
113	beta-Endosulfan		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
114	Endosulfan Sulfate		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
115	Endrin		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
116	Endrin Aldehyde		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
117	Heptachlor		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
118	Heptchlor Epoxide		< 0.01			< 0.01				< 0.01			< 0.01				< 0.01
119 -125	PCBs		< 0.1			< 0.1				< 0.1			< 1				< 0.1
126	Toxaphene		< 0.1			< 0.1				< 0.1			< 1				< 1
	Tributyltin									0			0.006				< 0.6

Also Note: In the first block of data in this worksheet, where 'ND' is listed- these are temporary placeholders for specific Detection Limit/Reporting Limit values that varied in the laboratory.

Attachment 4

LAS GALLINAS VALLEY SANITARY DISTRICT EFFLUENT MONITORING DATA (NOV 1998- DEC 2002)

# in CTR	CONSTITUENT	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Nov-02	Dec-02
2	Arsenic	0	0	< 2	0	0	1	1	1	0.7	0.8	1	1	0	1
4	Cadmium	0.1	< 0.2	< 0.2	< 0.1	< 0.2	0.6	0.1	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
5b	Chromium	1	< 1	1	1.6	2.2	1.2	1.2	2	1.1	< 0.5	1	0.6	0.9	1
6	Copper	12	11	14	16	19	7	8	15	14	11	25	12	7	9
7	Lead	2	< 2	< 2	< 0.4	2	0.4	0.5	1.5	0.8	0.6	0.7	0.5	0.3	0.7
8	Mercury	0.027	0.034	0.023	0.027	0.031	0.033	0.037	0.077	0.046	0.031	0.068	0.031	0.018	0.039
9	Nickel	4	5	5	4.9	7.3	2.6	6	8.2	4.5	4.7	4.8	4.5	3	7.3
10	Selenium	0	0	< 1	0	0	1	0.8	< 1	0.8	0.9	< 1	< 1	< 1	< 1
11	Silver	0	0	1.2	0	0	0.6	0.3	0.9	0.9	0.5	0.8	0.5	0.4	0.3
13	Zinc	80	90	90	94	105	100	61	89	100	75	110	96	71	57
14	Cyanide	3	< 3	< 3	< 3	10		4	2	4	< 3	5	0		< 3
16	2,3,7,8-TCDD (Dioxin)						<	0.00000708							< 0.000005
17	Acrolein						<	5			< 5				< 5
18	Acrylonitrile						<	2			< 2				< 2
19	Benzene						<	0.5			< 0.5				< 0.5
20	Bromoform			< 0.5			<	0.5			< 0.5				< 0.5
21	Carbon Tetrachloride			< 0.5			<	0.5			< 0.5				1
22	Chlorobenzene			< 0.5			<	0.5			< 0.5				< 0.5
23	Chlordibromomethane			< 0.5			<	0.5			< 0.5				1.1
24	Chloroethane			< 0.5			<	0.5			< 0.5				< 0.5
25	2-Chloroethylvinyl Ether			< 1			<	1			< 1				< 1
26	Chloroform			0 3.4				2.7			2.8				1.6
27	Dichlorobromomethane			0 1.4				1.2			1.3				1.5
28	1,1-Dichloroethane			< 0.5			<	0.5			< 0.5				< 0.5
29	1,2-Dichloroethane			< 0.5			<	0.5			< 0.5				< 0.5
30	1,1-Dichloroethylene			< 0.5			<	0.5			< 0.5				< 0.5
31	1,2-Dichloropropane			< 0.5			<	0.5			< 0.5				< 0.5
32	1,3-Dichloropropylene			< 0.5			<	0.5			< 0.5				< 0.5
33	Ethylbenzene			< 0.5			<	0.5			< 0.5				< 0.5
34	Methyl Bromide			0 0.9			<	0.5			< 0.5				< 0.5
35	Methyl Chloride			< 0.5			<	0.5			< 0.5				< 0.5
36	Methylene Chloride			< 2			<	2			< 2				< 2
37	1,1,2,2-Tetrachloroethane			< 0.5			<	0.5			< 0.5				< 0.5
38	Tetrachloroethylene			< 0.5			<	0.5			< 0.5				< 0.5
39	Toluene			< 0.5			<	0.5			< 0.5				< 0.5
40	1,2-Trans-Dichloroethylene			< 0.5			<	0.5			< 0.5				< 0.5
41	1,1,1-Trichloroethane			< 0.5			<	0.5			< 0.5				< 0.5
42	1,1,2-Trichloroethane			< 0.5			<	0.5			< 0.5				< 0.5
43	Trichloroethylene			< 0.5			<	0.5			< 0.5				< 0.5
44	Vinyl Chloride			< 0.5			<	0.5			< 0.5				< 0.5
45	2-Chlorophenol			< 0.5			<	6			< 5				< 5
46	2,4-Dichlorophenol			< 0.5			<	6			< 5				< 5
47	2,4-Dimethylphenol			< 0.5			<	6			< 2				< 2
48	2-Methyl-4,6-Dinitrophenol			< 0.5			<	6			< 5				< 5
49	2,4-Dinitrophenol			< 0.5			<	6			< 5				< 5
50	2-Nitrophenol			< 0.5			<	6			< 5				< 5
51	4-Nitrophenol			< 0.5			<	6			< 5				< 5
52	3-Methyl-4-Chlorophenol			< 0.5			<	2			< 1				< 1
53	Pentachlorophenol			< 0.5			<	2			< 1				< 1
54	Phenol			< 5			<	2			< 1				< 1
55	2,4,6-Trichlorophenol			< 5			<	6			< 5				< 5
56	Acenaphthene			< 0.3			<	0.3			< 0.2				< 0.3
57	Acenephthylene			< 0.3			<	0.2			< 0.2				< 0.2
58	Anthracene			< 0.3			<	0.3			< 0.3				< 0.3
59	Benzidine			< 20			<	6			< 5				< 5
60	Benzo(a)Anthracene			< 0.3			<	0.3			< 0.3				< 0.3
61	Benzo(a)Pyrene			< 0.3			<	0.3			< 0.3				< 0.3
62	Benzo(b)Fluoranthene			< 0.3			<	0.3			< 0.3				< 0.3
63	Benzo(ghi)Perylene			< 0.3			<	0.3			< 0.1				< 0.1
64	Benzo(k)Fluoranthene			< 0.3			<	0.3			< 0.3				< 0.3
65	Bis(2-Chloroethoxy)Methane			< 5			<	6			< 5				< 5

Attachment 4
LAS GALLINAS VALLEY SANITARY DISTRICT EFFLUENT MONITORING DATA (NOV 1998- DEC 2002)

# in CTR	CONSTITUENT	Jan-01	Feb-01	Mar-01	Apr-01	May-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Nov-02	Dec-02
66	Bis(2-Chloroethyl)Ether			< 5				< 2			< 1				< 1
67	Bis(2-Chloroisopropyl)Ether			< 5				< 3			< 2				< 2
68	Bis(2-Ethylhexyl)Phthalate			< 5				< 6			16				< 5
69	4-Bromophenyl Phenyl Ether			< 5				< 6			< 5				< 5
70	Butylbenzyl Phthalate			< 5				< 6			< 5				< 5
71	2-Chloronaphthalene			< 5				< 6			< 5				< 5
72	4-Chlorophenyl Phenyl Ether			< 5				< 6			< 5				< 5
73	Chrysene			< 0.3				< 0.3			< 0.3				< 0.3
74	Dibenzo(a,h)Anthracene			< 0.3				< 0.1			< 0.1				< 0.1
75	1,2 Dichlorobenzene			< 0.5				< 0.5			< 0.5				< 0.5
76	1,3 Dichlorobenzene			< 0.5				< 0.5			< 0.5				< 0.5
77	1,4 Dichlorobenzene			< 0.5				< 0.5			< 0.5				< 0.5
78	3,31-Dichlorobenzidine			< 5				< 6			< 5				< 5
79	Diethyl Phthalate			< 5				< 3			< 2				< 2
80	Dimethyl Phthalate			< 5				< 3			< 2				< 2
81	Di-n-Butyl Phthalate			< 5				< 6			< 5				< 5
82	2,4-Dinitrotoluene			< 5				< 6			< 5				< 5
83	2,6-Dinitrotoluene			< 5				< 6			< 5				< 5
84	Di-n-Octyl Phthalate			< 5				< 6			< 5				< 5
85	1,2-Diphenylhydrazine			< 5				< 2			< 1				< 1
86	Fluoranthene			< 0.3				< 0.05			< 0.1				< 0.1
87	Fluorene			< 0.3				< 0.1			< 0.05				< 0.05
88	Hexachlorobenzene			< 5				< 2			< 1				< 1
89	Hexachlorobutadiene			< 5				< 2			< 1				< 1
90	Hexachlorocyclopentadiene			< 5				< 6			< 5				< 5
91	Hexachloroethane			< 5				< 2			< 1				< 1
92	Indeno(1,2,3-cd) Pyrene			< 0.3				< 0.05			< 0.05				< 0.05
93	Isophorone			< 5				< 2			< 1				< 1
94	naphthalene			< 0.3				< 0.2			< 0.2				< 0.2
95	Nitrobenzene			< 5				< 2			< 1				< 1
96	N-Nitrosodimethylamine			< 5				< 6			< 5				< 5
97	N-Nitrosodi-n-Propylamine			< 5				< 6			< 5				< 5
98	N-Nitrosodiphenylamine			< 5				< 2			< 1				< 1
99	Phenanthrene			< 0.3				< 0.05			< 0.05				< 0.05
100	Pyrene			< 0.3				< 0.05			< 0.05				< 0.05
101	1,2,4-Trichlorobenzene			< 5				< 6			< 5				< 5
102	Aldrin			< 0.01				< 0.005			< 0.005				< 0.005
103	alpha-BHC			< 0.01				< 0.01			< 0.01				< 0.01
104	beta-BHC			< 0.01				< 0.005			< 0.005				< 0.005
105	gamma-BHC			< 0.01				< 0.01			< 0.01				< 0.01
106	delta-BHC			< 0.01				< 0.005			< 0.005				< 0.005
107	Chlordane			< 0.02				< 0.02			< 0.02				< 0.02
108	4,4-DDT			< 0.01				< 0.01			< 0.01				< 0.01
109	4,4-DDE			< 0.01				< 0.01			< 0.01				< 0.01
110	4,4-DDD			< 0.01				< 0.01			< 0.01				< 0.01
111	Dieldrin			< 0.01				< 0.01			< 0.01				< 0.01
112	alpha-Endosulfan			< 0.01				< 0.01			< 0.01				< 0.01
113	beta-Endosulfan			< 0.01				< 0.01			< 0.01				< 0.01
114	Endosulfan Sulfate			< 0.01				< 0.01			< 0.01				< 0.01
115	Endrin			< 0.01				< 0.01			< 0.01				< 0.01
116	Endrin Aldehyde			< 0.01				< 0.01			< 0.01				< 0.01
117	Heptachlor			< 0.01				< 0.01			< 0.01				< 0.01
118	Heptchlor Epoxide			< 0.01				< 0.01			< 0.01				< 0.01
119 -125	PCBs			< 0.1				< 0.1			< 0.1				< 0.1
126	Toxaphene			< 1				< 0.5			< 0.5				< 0.5
	Tributyltin			< 0.05				< 5			< 0.004				< 0.0042

Also Note: In the first block o

Attachment 5

Statistical Analysis of Cyanide Effluent Data
for the Development of Interim Performance-based Effluent Limit

Attachment 5
Statistical Analysis of Cyanide Effluent Data for the Development of Interim Performance-based Effluent Limit

Las Gallinas Valley Sanitary District
NPDES Permit No. CA 0037851 Order NO. R2-2003-XXXX
Fact Sheet

Software: MiniTab
Censored data analysis: robust method

There are a total of 26 cyanide effluent data points (during the discharge season from November 1998 through December 2002) with 11 non-detected values (Method detection limit (MDL) = 3 and 5, respectively). The data ranged from 2 to 10 µg/L. Lognormal distribution fits the data above the MDLs better than normal distribution, therefore, the analysis was performed on the log-transformed data.

Statistics summary of raw cyanide data (regression method):

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	26	**3.641**	3.000	3.489	2.298	0.451

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	0.936	10.000	1.943	5.000

Mean = 3.64 µg /L

Statistics estimates of the log-transformed cyanide data:

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	26	**1.112**	1.099	1.111	**0.618**	0.121

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	-0.066	2.303	0.664	1.609

95th percentile = exp(mean+1.645*standard deviation) = 8.4 µg/L (for infeasibility analysis)
99th percentile = exp(mean+2.326*standard deviation) = 12.8 µg/L (for infeasibility analysis)

99.87th percentile = exp(mean+3*standard deviation) = exp(1.112+3*0.618) = **19 µg/L** (interim performance-based limit)

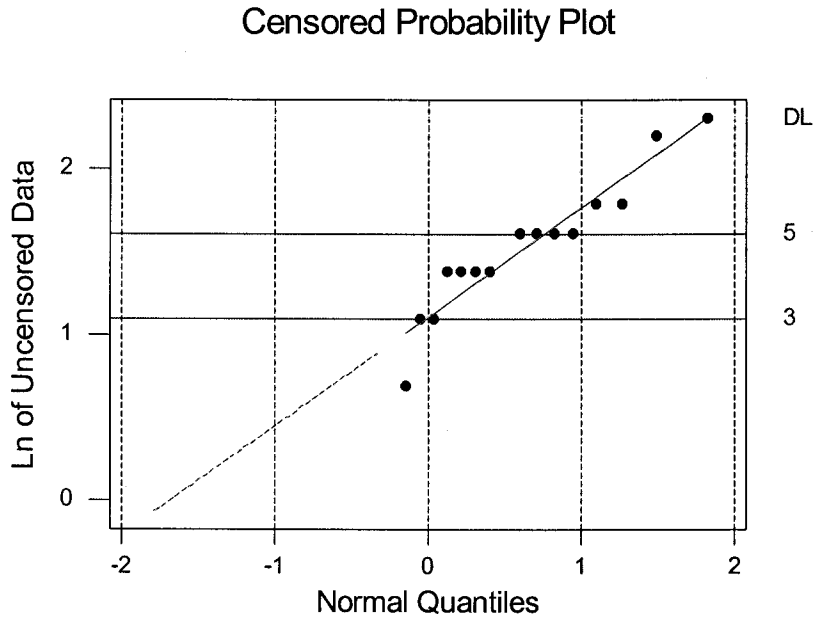


Figure 1. Probability Plot of Censored Cyanide Effluent Data *

* non-detected data are not shown on the plot,
but their ranks or positions are retained when the plot is generated

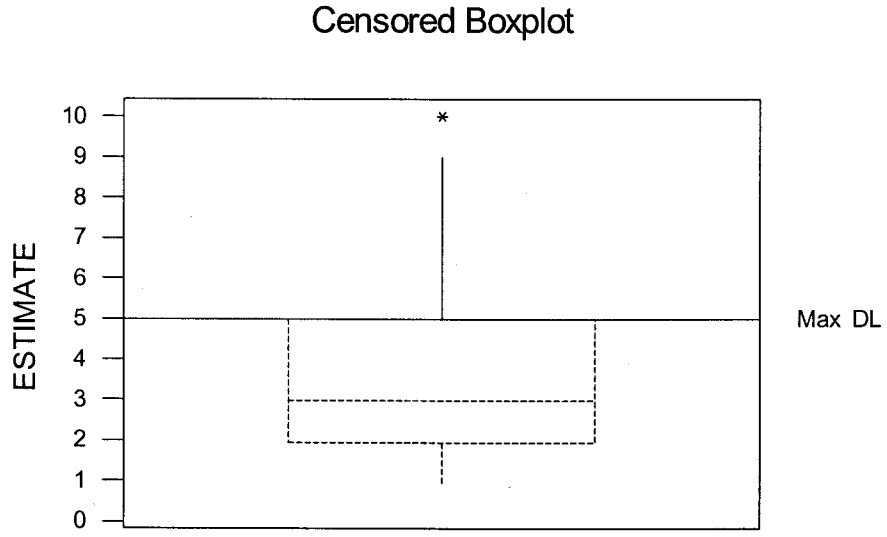


Figure 2. Box Plot of Censored Cyanide Effluent Data

Attachment 6

Statistical Analysis of Effluent Data for Infeasibility Determination
(Chromium VI, Nickel, Lead, Copper, and Mercury)

Attachment 6

Statistical Analysis of Effluent Data for Infeasibility Determination (Chromium VI, Nickel, Lead, Copper, and Mercury)

Las Gallinas Valley Sanitary District
NPDES Permit No. CA 0037851 Order NO. R2-2003-XXXX
Fact Sheet

Software: MiniTab
Censored data analysis method: robust regression method

1. Chromium (VI)

There are a total of 29 chromium (V) effluent data points (during the discharge season from November 1998 through December 2002) with 14 non-detected values (Method detection limit (MDL) = 3 and 5 μg/L, respectively). The data ranged from 2 to 10 μg/L. Lognormal distribution fits the data above the MDLs.

Statistics estimates of the raw chromium data (regression method)

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	29	**0.9437**	0.9000	0.9176	0.4365	0.0811

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	0.3917	2.2000	0.6041	1.0591

Statistics estimates of the log-transformed data:

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	29	**-0.1495**	-0.1054	-0.1551	**0.4290**	0.0797

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	-0.9373	0.7885	-0.5040	0.0567

Mean = 0.94 μg/L
95th percentile = exp(mean+1.645*standard deviation) = 1.74 μg/L
99th percentile = exp(mean+2.326*standard deviation) = 2.34 μg/L

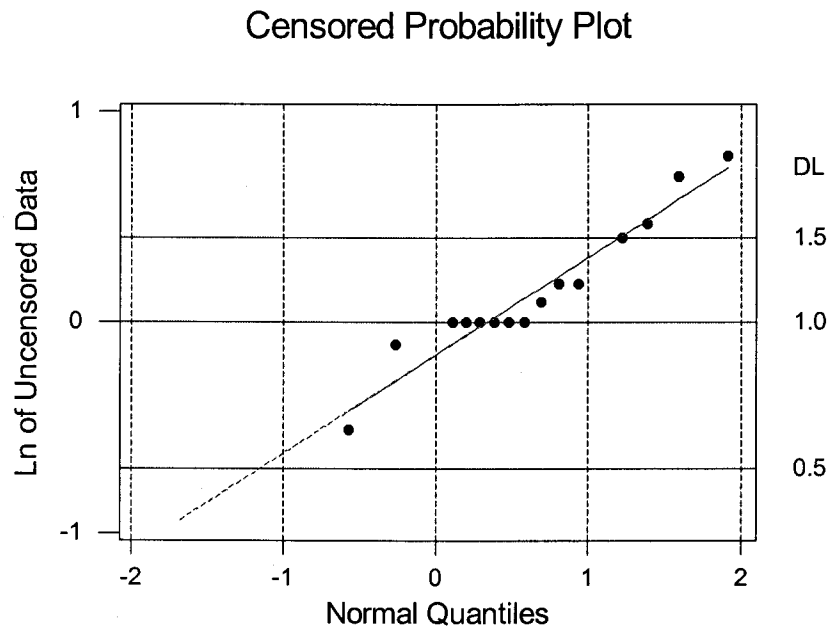


Figure 1. Probability Plot of Censored Chromium (VI) Effluent Data

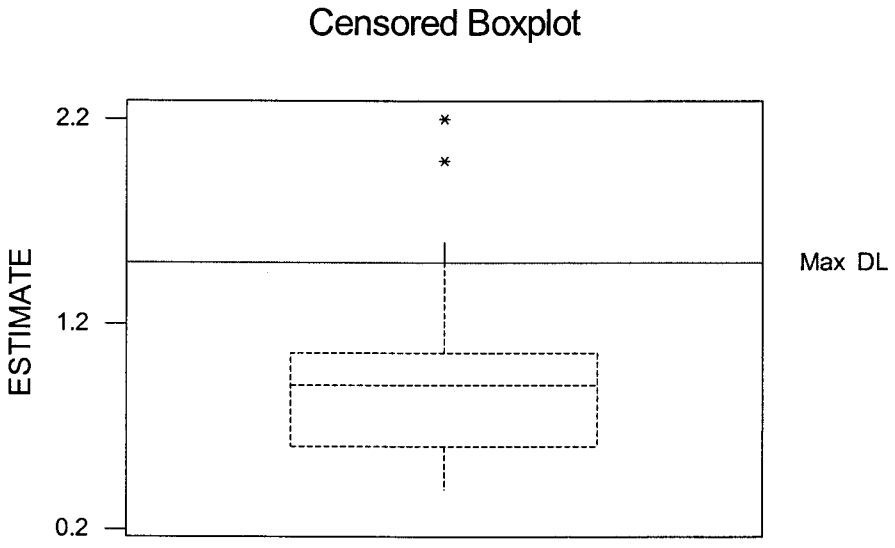


Figure 2. Box Plot of Censored Chromium (VI) Effluent Data

2. Lead

19 out of 29 data points are non-detects
MDLs = 2.0, 2.5 µg/L

Statistics estimates of the raw lead data (regression method)

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	29	**0.3243**	0.2185	0.2913	0.3098	0.0575

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	0.0385	1.5000	0.1208	0.4500

Statistics estimates of the log-transformed lead data (regression method)

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	29	**-1.493**	-1.521	-1.498	**0.881**	0.164

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	-3.256	0.405	-2.115	-0.805

Mean = 0.32 µg/L
95th percentile = exp(mean+1.645*standard deviation) = 0.96µg/L
99th percentile = exp(mean+2.326*standard deviation) = 1.74 µg/L

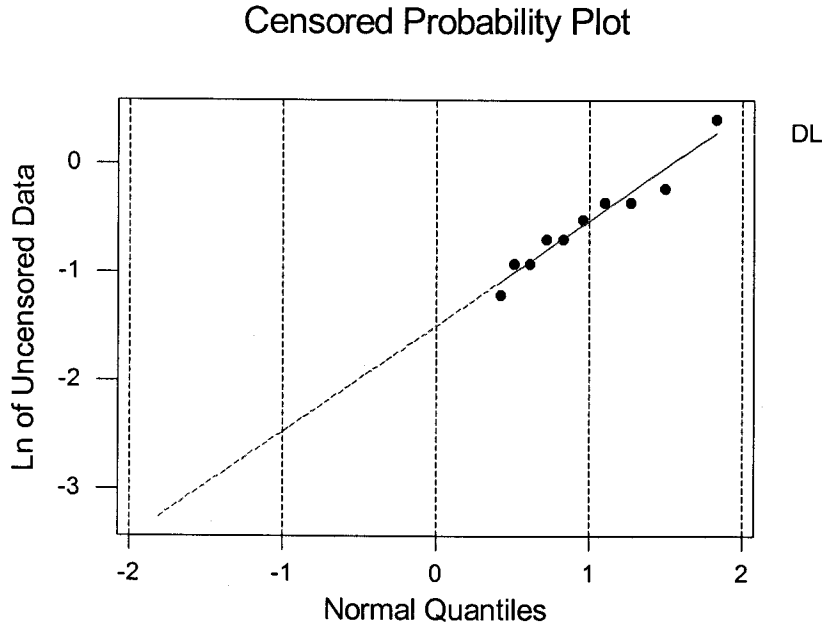


Figure 3. Probability Plot of Censored Lead Effluent Data

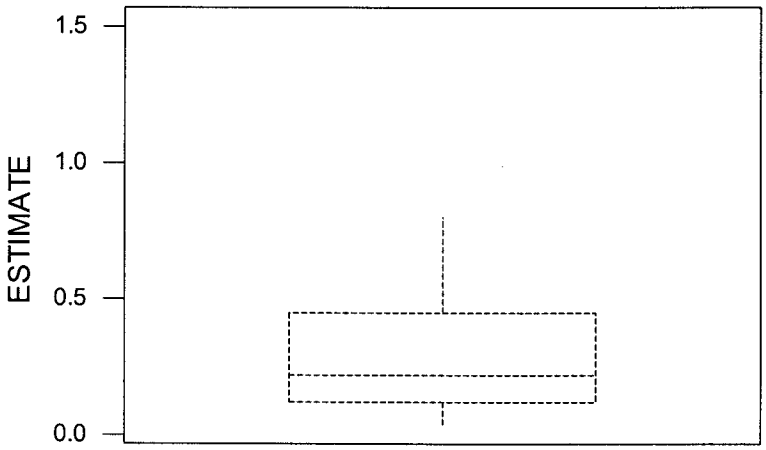


Figure 4. Box Plot of Censored Lead Effluent Data

3. Nickel

Total No. of data points = 29
Total No. of non-detects = 5
MDLs = 3, 4.5, 5.0 µg/L

Statistics estimates of raw nickel data (regression method)

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	29	**4.632**	4.500	4.586	1.492	0.277

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	2.314	8.200	3.640	5.500

Statistics estimates of log-transformed nickel data for percentile estimate (regression method)

Variable	N	Mean	Median	TrMean	StDev	SE Mean
ESTIMATE	29	**1.4830**	1.5041	1.4838	**0.3245**	0.0603

Variable	Minimum	Maximum	Q1	Q3
ESTIMATE	0.8390	2.1041	1.2912	1.7006

Mean = 4.63 µg/L
95th percentile = exp(mean + 1.645 StDev) = 7.51 µg/L
99th percentile = exp(mean + 2.323 StDev) = 9.37 µg/L

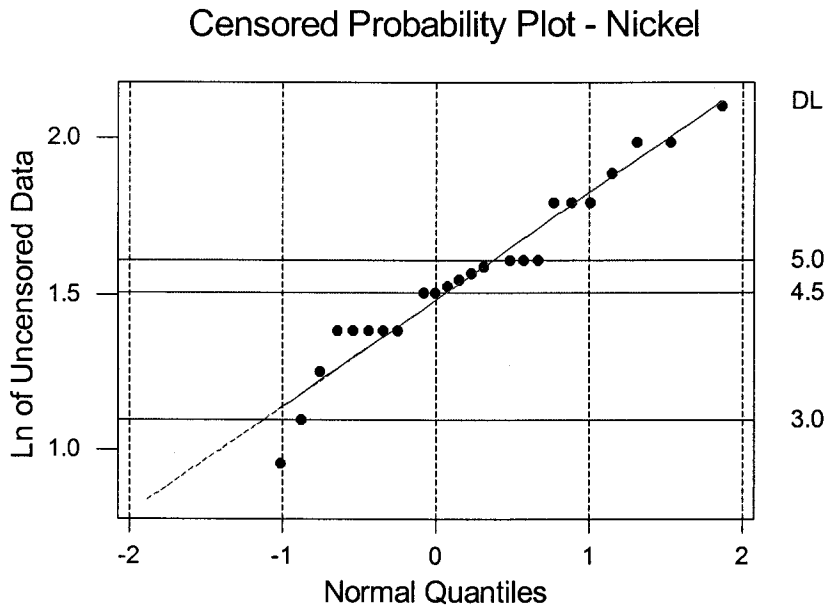


Figure 5. Probability Plot of Censored Nickel Effluent Data

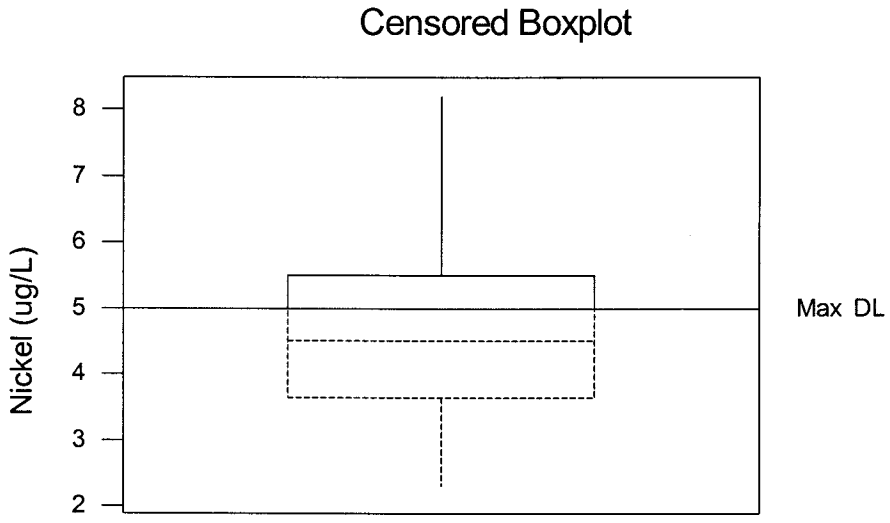


Figure 6. Box Plot of Censored Nickel Effluent Data

4. Copper

No. of data points: 30 (all above detection limit)

Summary statistics of copper effluent data:

Variable	N	Mean	Median	TrMean	StDev	SE Mean
Cu	30	**10.333**	9.000	9.769	4.294	0.784

Variable	Minimum	Maximum	Q1	Q3
Cu	5.000	25.000	7.000	12.250

Percentile estimates

Percent	Percentile	95% CI Approximate Lower Limit	95% CI Approximate Upper Limit	
1.00	4.2314	3.3145	5.4020	
2.00	4.6608	3.7266	5.8292	
3.00	4.9555	4.0124	6.1203	
4.00	5.1895	4.2407	6.3505	
5.00	5.3879	4.4351	6.5454	
6.00	5.5628	4.6069	6.7170	
7.00	5.7207	4.7623	6.8721	
8.00	5.8660	4.9054	7.0147	
9.00	6.0013	5.0387	7.1478	
10.00	6.1286	5.1642	7.2731	
20.00	7.1631	6.1799	8.3027	
30.00	8.0158	7.0013	9.1772	
40.00	8.8243	7.7572	10.0382	
50.00	9.6536	8.5034	10.9595	
60.00	10.5609	9.2838	12.0137	
70.00	11.6262	10.1548	13.3108	
80.00	13.0101	11.2244	15.0800	
90.00	15.2062	12.8134	18.0459	
91.00	15.5288	13.0380	18.4954	
92.00	15.8870	13.2853	18.9982	
93.00	16.2903	13.5611	19.5689	
94.00	16.7530	13.8741	20.2292	
95.00	**17.2967**	14.2379	21.0125	
96.00	17.9580	14.6749	21.9756	
97.00	18.8058	15.2268	23.2259	
98.00	19.9951	15.9871	25.0078	
99.00	**22.0240**	17.2515	28.1169	
99.87	**28.0794**	20.8336	37.8452	(interim limit)
99.90	28.8748	21.2868	39.1675	

Mean = 10.33 µg/L
95th percentile = 17.3 µg/L
99th percentile = 22.0 µg/L
99.87th percentile = 28 µg/L

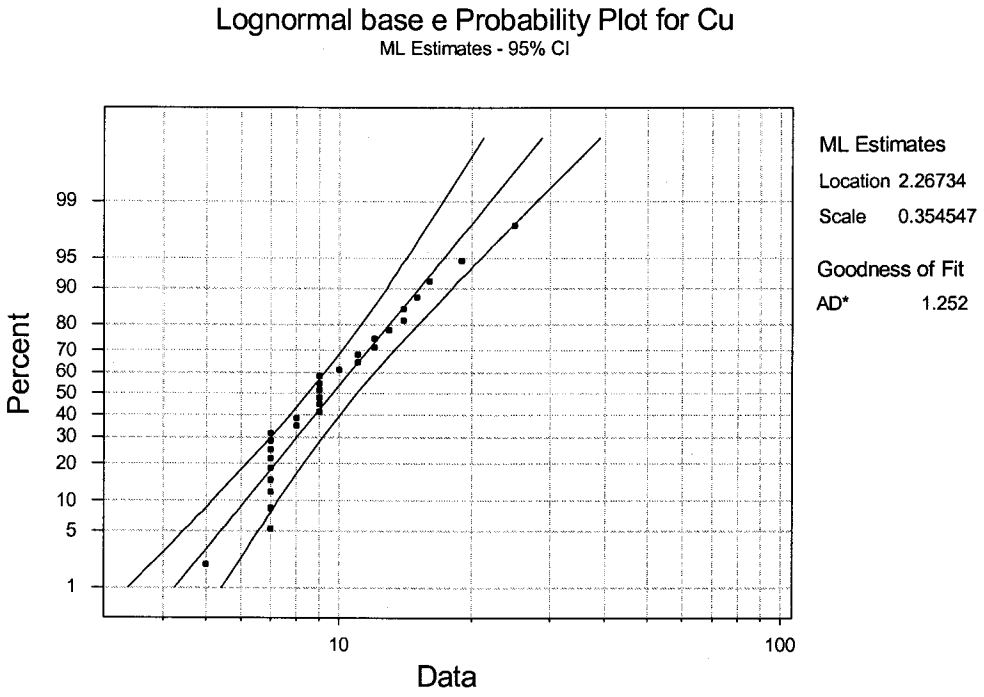


Figure 7. Probability Plot of Copper Effluent Data

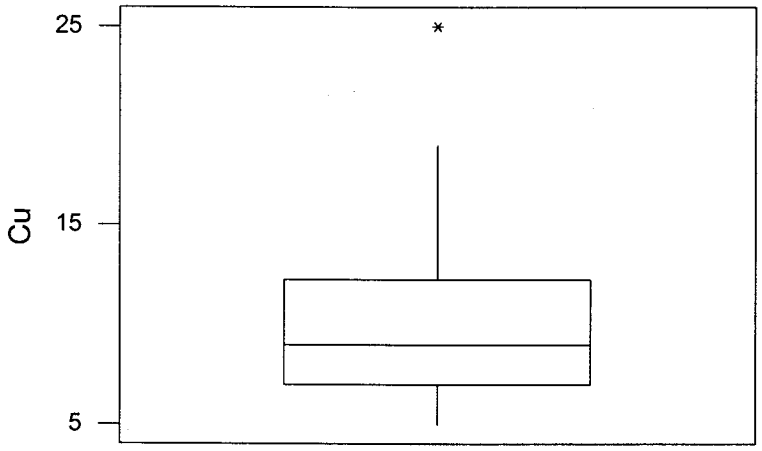


Figure 8. Box Plot of Copper Effluent Data

5. Mercury

Total of data points: 30 (all data are detected)

Summary statistics of mercury data:

Variable	N	Mean	Median	TrMean	StDev	SE Mean
hg	30	0.03517	0.03100	0.03342	0.01238	0.00226

Variable	Minimum	Maximum	Q1	Q3
hg	0.01800	0.07700	0.02775	0.03750

Percentile estimates:

Percent	Percentile	95% CI Approximate Lower Limit	95% CI Approximate Upper Limit
1.00	1.69E-02	1.38E-02	0.020665
2.00	1.83E-02	1.52E-02	0.022018
3.00	1.92E-02	1.61E-02	0.022931
4.00	2.00E-02	1.69E-02	0.023648
5.00	2.06E-02	1.75E-02	0.024251
6.00	2.12E-02	1.81E-02	0.024780
7.00	2.17E-02	1.86E-02	0.025256
8.00	2.21E-02	1.91E-02	0.025692
9.00	2.26E-02	1.95E-02	0.026098
10.00	2.30E-02	1.99E-02	0.026479
20.00	2.61E-02	2.31E-02	0.029569
30.00	2.87E-02	2.57E-02	0.032143
40.00	3.11E-02	2.79E-02	0.034638
50.00	3.35E-02	3.02E-02	0.037269
60.00	3.61E-02	3.25E-02	0.040234
70.00	3.91E-02	3.50E-02	0.043824
80.00	4.30E-02	3.80E-02	0.048628
90.00	4.90E-02	4.25E-02	0.056480
91.00	4.98E-02	4.31E-02	0.057650
92.00	5.08E-02	4.38E-02	0.058954
93.00	5.19E-02	4.45E-02	0.060427
94.00	5.31E-02	4.54E-02	0.062121
95.00	**5.45E-02**	4.64E-02	0.064120
96.00	5.63E-02	4.75E-02	0.066561
97.00	5.85E-02	4.90E-02	0.069704
98.00	6.15E-02	5.11E-02	0.074134
99.00	**6.67E-02**	5.44E-02	0.081741
99.90	8.36E-02	6.48E-02	0.107758

Mean = 0.036µg/L
95th percentile = 0.054µg/L
99th percentile = 0.067 µg/L

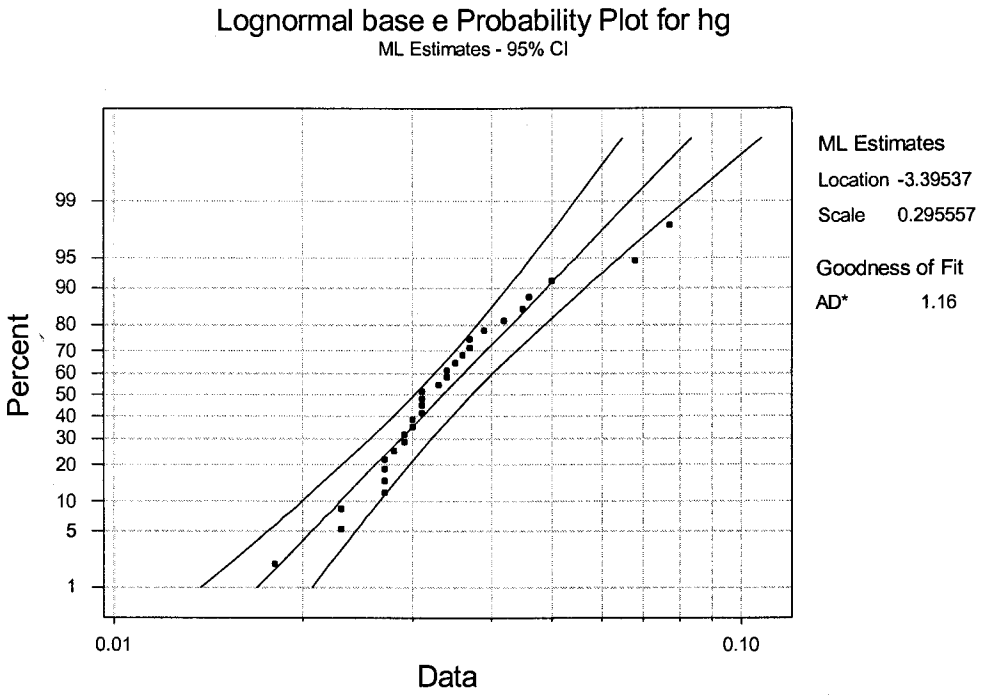


Figure 9. Probability Plot of Mercury Effluent Data

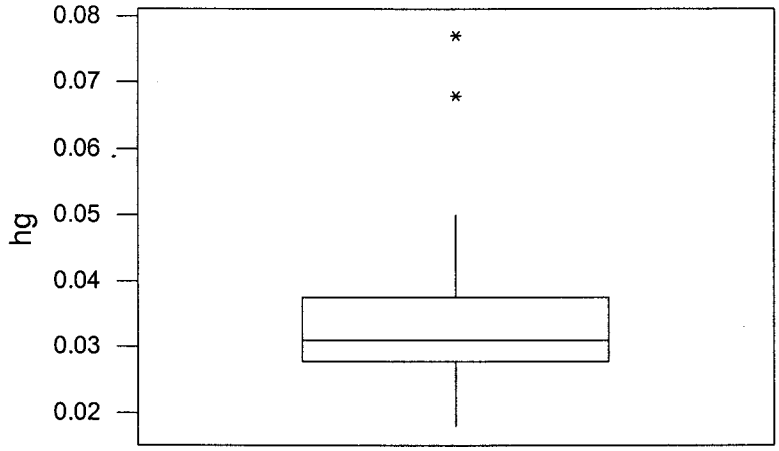


Figure 10. Box Plot of Mercury Effluent Data